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AUTHOR	Schachter, Frances Fuchs; And Others
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ABSTRACT

Three studies of preschool children's interpersonal speech usage were formulated in an attempt to understand this aspect of language development. First, a methodological study was designed to develop an instrument for assessing spontaneous interpersonal speech; second, a developmental study was aimed at identifying developmental changes in the pattern of spontaneous speech usage; and third, a sociolinguistic study was aimed at identifying differences in speech usage among advantaged and disadvantaged children. (SBT)

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EVERYDAY PRESCHOOL INTERPERSONAL SPEECH USAGE: METHODOLOGICAL, DEVELOPMENTAL, AND SOCIOLINGUISTIC STUDIES

Final Report

Frances Fuchs Schachter[1]
Kathryn Kirshner
Bonnie Klips
Martha Friedricks

August 1973

Research Division
Bank Street College of Education
610 West 112th Street
New York, N. Y. 10025

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Bank Street College Early Childhood Research Center
Herbert Zimiles, Ph.D., Director

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Forward

The tumultuous beginning of Project Head Start, which entailed launching a nationwide preschool program in the face of limited facilities and a paucity of trained personnel, was accompanied by hastily conceived efforts to evaluate its effectiveness. Once the program had begun to stabilize, the U.S. Office of Economic Opportunity developed a plan for securing the sustained participation of university researchers in a program of research and evaluation. Fourteen university-based, geographically distributed Head Start Evaluation and Research Centers were established to participate jointly in a centrally directed national evaluation and, at the same time, individually mount a program of research relevant to the needs of Head Start. The Bank Street College Research Division welcomed the opportunity to serve in this capacity. Upon completion of the national evaluation program, the Bank Street Evaluation and Research Center was invited to continue its research program under the auspices of OEO as an Early Childhood Research Center. Our productive association with OEO has been greatly facilitated by those charged with the responsibility for coordinating this national program of research and evaluation; it is a pleasure to acknowledge the valuable advice and assistance we have received from Drs. Edmund Gordon, John McDavid, Lois-ellen Datta and Edith Grotberg.

The Bank Street Center's program of research dealt with two major areas of investigation. Because the compensatory educational movement was so fundamentally concerned with upgrading children's academic competence and seemed, at least in some quarters, to be based upon an inadequate understanding of the nature of young children's thinking and learning, we chose to focus one part of our research effort on the study of cognitive development in young children, particularly children with deprived backgrounds. The second broad area of investigation, formulated by the sociologists and anthropologists of our interdisciplinary staff, was concerned with the manner in which organizational structure and dynamics affected the programs of Head Start centers.

One facet of our comparative study of cognitive development was devoted to Dr. Schachter's study of preschool language. In sharp contrast with the prevailing focus on recording the development of language content directly related to conceptual functioning, Dr. Schachter chose to investigate the emergence of language as a tool for social intercourse and projection of the self. The child's earliest problem solving and mastery of language are seen as developing in the context of his communication with others and the need to assert himself. Dr. Schachter's work is concerned with differentiating and assessing functional aspects of children's language.

Herbert Zimiles, Ph.D., Director
Early Childhood Research Center

I. INTRODUCTION

Why do children talk spontaneously to others in the everyday naturalistic situation? This fundamental functional-motivational question assumes heightened significance in the light of White's recent finding (White, in press) that mothers of young children talk to them "mostly" (p. 33) when the child spontaneously initiates the interaction. White (1971) reports:

> Our most effective mothers do not devote the bulk of their day to rearing their children....Though usually working on some chore, she (mother) in generally within earshot. He (child) then goes to her and usually, but not always, is responded to by his mother with help or shared enthusiasm plus, occasionally, an interesting, naturally related idea. These 10 to 30 second interchanges are usually oriented around the child's interest of the moment rather than toward some need or interest of the mother....
>
> These mothers very rarely spend 5, 10 or 20 minutes teaching their one- or two-year-olds, but they get an enormous amount of teaching in "on the fly," and usually at the child's instigation. Though they do volunteer comments opportunistically, they mostly act in response to overtures by the child (White, 1971, p. 87; emphasis in the original).

White's refreshingly naturalistic observations, though they may seem obvious to the universally harried mother who is unlikely to disturb the blessing of a quiet moment by starting a conversation with her child, could and should have a salutary effect on both the study of early language development, and on current efforts to develop compensatory preschool programs for the disadvantaged.

Regarding language development, it is encouraging to note the expanding

horizons of our developmental psycholinguists from a narrow focus on pure form, or syntax, to a broader view which now encompasses the semantic or cognitive aspects of language development (see Bloom's comprehensive review of the last decade, in press). Yet research in this area has still to encompass those non-linquistic and noncognitive, motivational, personal and social aspects of speech which seem to play so prominent a role in natural development, as indicated by White's data (1971).

Regarding compensatory preschool programs for the disadvantaged, they have been mainly of two kinds: (a) didactic programs and (b) whole-child programs. In didactic programs, teachers actively focus on intensive training in language, its structure (Bereiter and Engelmann, 1966) or some cognitive aspect of its function like coding ability (Moore, 1971). On the other hand, whole-child programs (Biber, Shapiro and Wickens, 1971) resemble White's good home environment, both socially and physically, in that the teacher is responsive to the child's self-propelled activity; the physical equipment resembles those play materials usually provided by the well equipped home; the curriculum consists of the rich flow of daily interactions (including verbal) between the child and his social and physical world; and it is assumed that the child will talk when he feels the need to do so. Citing Kohlberg and Mayer's (1972) key distinction between programs which stimulate development and those which mimic development, Cazden (1972) vividly presents the critical dilemma in our preschool compensatory efforts to date. Namely, while it is the whole-child programs that come closest to White's good home environment for stimulating development, it is the didactic programs, those which seemingly artificially force or mimic development, which have so far proven more effective, though the gains are likely to be short term and limited. Cazden (1972) concludes:

Because everything we know about language development suggests that it develops best...when motivated by powerful communication intent, and because we want to stimulate development and not just mimic it, it is important to try to make "natural," less didactic, group environments more effective (Cazden, 1972, p. 24, quotation marks in the original).

Whether the ultimate goal is to make whole-child programs more effective, or to contribute to an understanding of language development, it seems important to examine the noncognitive, motivational, personal and social aspects of speech functioning as it occurs in everyday naturalistic communication. Virtually no data exists on the subject. Those who adopt a whole-child paradigm have not focused their attention specifically on verbal development (Biber, et al., 1971), while those who have studied language and speech development have failed to take noncognitive factors into account. As has been noted, research on language development has focused on syntax and semantics. Studies of speech development have focused on the adequacy of the communication rather than its uses in communication (Piaget, 1926; Flavell, 1968); or on intrapersonal rather than on interpersonal speech (Vygotsky, 1962; Luria, 1961; Kendler, 1963). Indeed, it is ironic that it is the sociolinguists (Bernstein, 1970; Labov, 1970; Hymes, 1971), rather than the psychologists, who have been examining the complex experience of human communication in its intricate social and motivational contexts, in search of <u>ethnolinguistic</u> or <u>ecological</u> insights into the poverty school problem. Yet, apart from the fact that these sociolinguistic studies tend to be informal in methodology, largely descriptive and anecdotal, the research to date has been limited to older children and adults, thus lacking a developmental perspective. We have no data on how patterns of self-motivated everyday speech develop in early childhood or on early sociolinguistic differences.

The present investigation was designed to provide this ethnolinguistic data for urban black and white children ages 2 to 5 in the context of the free play period, of the kind prescribed by whole-child programs. The ecological setting is the community group care center for preschoolers, day care, Head Start, private school, etc. The free play period was chosen to maximize the occurrence of spontaneous speech. The urban preschool center was chosen in order to derive implications for efforts at compensatory preschool language intervention programming.

Specifically, the following studies were undertaken:

1. A Methodological Study aimed at developing an instrument for scoring spontaneous interpersonal preschool speech from the point of view of the child's need to talk. The scoring scheme is called the Functions of Interpersonal Spontaneous Preschool Speech (FIS-P). The instrument was developed on the basis of 6,000 statements from 150 preschoolers, advantaged and disadvantaged, black and white.

2. A Developmental Study aimed at identifying developmental changes in the pattern of spontaneous speech usage (FIS-P scores) during the preschool years, from 2 to 5. Longitudinal data were collected on a small sample of four advantaged white Ss, each S observed at ages 2-0, 2½, 3-0, 3½, and 4½. Cross-sectional data were collected on a large sample of 170 Ss consisting of four sociolinguistic groups: advantaged white, advantaged black, disadvantaged black, all groups of above average mean IQ, plus a disadvantaged black group of below average mean IQ, each group with subgroups at ages 2½, 3½, 4½, and 5½.

3. A Sociolinguistic Study aimed at identifying differences in speech usage (FIS-P scores) among the four sociolinguistic groups under study.

II. METHODOLOGICAL STUDY

It was necessary to develop a scoring scheme for the functions of spontaneous interpersonal preschool speech from the viewpoint of the child's need to talk because existing functional category schemes (those of Piaget, 1926; Jakobson /see Bruner, 1966, Chapter 5/; and Skinner, 1957) did not appear suitable. Neither Jakobson's nor Skinner's[2] category systems were designed to deal with the special features of speech in early childhood. Piaget's category system, while specific to child speech, was intended to distinguish levels of communication ability rather than speech function from the viewpoint of the child's need to talk, as Piaget himself points out (Piaget and Inhelder, 1969). As such, Piaget (1926) distinguished between the immature egocentric speech, including mere repetitions, talking to oneself (the monologue), talk intended for communication but not adapted to the needs of the listener (the collective monologue); and the more mature socialized speech, both intended for communication and adapted to the needs of the listener. The present study, which is concerned with speech from the viewpoint of the child's need to talk to others, covers speech intended for interpersonal communication, thus encompassing Piaget's collective monologue, his socialized speech, and those repetitions which are intended for communication.

More specifically, the present scoring scheme defines an utterance or a statement as scoreable if it fulfills the following dual criteria: (a) It must be spontaneous, initiated by the child, with no prodding or shaping by adults and no direct questioning by peers. Recording was interrupted when the teacher initiated or shaped the statement in any way. Statements in response to other children's utterances were scoreable, unless a direct question was asked by the other. (b) It must be intended for interpersonal communication. A list of

statements that were not scoreable because they were neither spontaneous nor interpersonal, or for some other reason, were designated by a series of Nonscores as follows: Intrapersonal, when S carries on a monologue with himself; Unintelligible, when utterance, context, or tone are inaudible; Nonword, for words not included in the Random House dictionary; Song, for known songs (spontaneously created chants were scored); Answer to Peer Question; Spinner Repetition, rhythmic, often excited repetition with no pause between repetitions (e.g., "Look, look, look"); Incomplete, when utterance is interrupted, so that its motive cannot be ascertained.

An utterance or statement was defined as a semantically differentiated word or series of words, usually preceded and followed by a pause. Grammatical incompletion or inaccuracy, both common among preschoolers, was ignored. The judgment as to whether a word or series of words constituted an utterance was highly reliable, with scorer agreement .95, as was the judgment as to whether it was a scoreable utterance, with scorer agreement .91 (see reliability section below).

The following sections will describe the instrument development phase; recording and scoring procedures of the FIS-P; reliability assessments; and a factor analysis of FIS-P scores.

Instrument Development Phase

Preliminary Steps

Scores were developed empirically, based on 2,000 actual statements, from 100 preschoolers observed during the free play activities of the kind prescribed by the whole-child approach. The judgment of why the child was talking was essentially a clinical subjective judgment based on the statement, its context and tone, and the training and experience of the observers. The observers included a clinical child psychologist and a former nursery school teacher.

In order to cover the range and variety of speech patterns anticipated in the projected Sociolinguistic Study, Ss included both advantaged and disadvantaged preschoolers and both black and white. All were New York City residents. Advantaged black and white Ss were observed in the classes for 3- and 4-year-olds of a private school. Disadvantaged Ss, black and white, were observed in the six classes (two 3-year-olds, two 4-year-olds, and two 5-year-olds) of a Poverty Program early childhood center.[3] Both programs were in laboratory schools connected with the institution sponsoring the research so that the observers could move freely from class to class recording and observing spontaneous speech during free play.

Statements were collected at random to begin with, each observation period followed by a discussion of the child's possible motives for making the statements. Gradually the utterances the children were spontaneously generating began to form a coherent pattern of about 200 major and minor scores.

Final Steps

In order to eliminate rarely occurring minor scores, 4,000 utterances from a previous study of 4-year-olds, which represented the first formal application of FIS-P scores, were used (see Schachter, 1971). This sample consisted of 57 Ss, black and white.[4] On the basis of these additional 4,000 statements, minor scores of very low frequency of occurrence (less than .1 mean interval per S) were eliminated, leaving a final form of the FIS-P consisting of 89 scores comprehensively covering all scoreable and nonscoreable utterances.

The elimination of minor scores in the final comprehensive form in no way affected the major scoring for each statement. For example, the statement "When I grow up, I'm going to be a pilot" was assigned a primary score of ego-enhancing, a secondary score of boasting about competence, and a tertiary score of boasting about a future achievement. Since this kind of reference to the future occurred

only once in 4,000 statements, the minor tertiary score was dropped, without affecting the primary and secondary scoring designation.

Finally, as a further attempt to cut the massive scoring scheme down to manageable proportions, an abbreviated version of the final comprehensive form was developed, covering all the major scores, 33 in number. It is this abbreviated version that is used in the Developmental and Sociolinguistic Studies. The following sections will describe the final comprehensive form in brief and the abbreviated form in detail. (For a full description of the comprehensive form, see Scoring Manual for FIS-P, Schachter and Kirshner, 1970.)

Comprehensive Form of FIS-P

Recording Procedures

The FIS-P is applied to 12 3-minute verbatim language samples per S, collected during the free play activity of the kind prescribed by the whole-child approach.

Twelve language samples per S are required in order to insure an adequate sampling of each S's speech. For the same reason, FIS-P procedure requires that each S be observed on at least 2 different days; 4 different days are recommended. Further, no two speech samples can follow each other consecutively if the child remains engaged in the same task. Only if the child persists at the same task for 15 minutes, can another speech sample be collected.

The 3-minute duration of the language sample was dictated largely by the need to retain the memory of the context and tone of each utterance. Since context and tone are of major significance in ascertaining the function of any utterance, the situation required either elaborate and mobile audio-visual equipment or a human observer-recorder. Given the fact that the projected Developmental and Sociolinguistic Studies required collecting data from a large number of preschool settings (39 were actually needed), mechanical recording was rejected

as too expensive and cumbersome and manual recording was used. The 3-minute interval makes it possible to remember most of the context and tone, whenever it is not possible to record and score the statement as it occurs. When S speaks too quickly for both complete recording and accurate scoring, the latter takes preference over the former. When neither is possible, the partly recorded statement is scored after each 3-minute interval. In the data collected to date, 80 to 90% of the scoreable utterances have been recorded verbatim.

The rationale for selecting the free play period has already been offered. It should also be noted, for the purposes of the generalizability of the FIS-P procedure, that this setting, as prescribed by the whole-child approach, provides a social and physical context which is fairly well standardized in many preschool centers across the country. The teacher's role is standardized as the responsive one. The physical equipment for self-selection is also quite standardized, including blocks, doll corner, books, puzzles, paints, lego, playdough, crayons, trucks, etc. Even the size of the class, usually about 15, and the adult-child ratio, usually 1 to 5 or 7, is quite standardized. Thus, the dominance of the whole-child approach in early education provides for reasonable control of a multitude of situational context variables in the study of differences among individuals or groups.

Scoring Procedures

Scoring Scheme

The comprehensive scoring scheme consists of Category scoring units and Additional scoring units. The category units are concerned with the functions of speech from the viewpoint of the child's motive for talking. The additional units are a miscellaneous group consisting of scores which are appended to the category units, designations for nonscoreable statements, and designations indicating whether the speech was addressed to adults or other children.

Category scoring units. The set of category scoring units consists of Category scores, Subcategory scores, and Subscores.

1. Category scores. There are nine major functional-motivational Category scores:

I. Expressive ("Ouch")

II. Desire Implementing ("I need red")

III. Possession Rights Implementing ("That's mine")

IV. Ego-Enhancing ("Look at my big house")

V. Self-Referring-Including ("Me too")

VI. Joining ("Let's go out")

VII. Collaborative ("The garage goes there")

VIII. Learning Implementing ("How does this go?")

IX. Reporting ("I'm making a monster")

The nine categories are comprehensive in that they cover motives for all spontaneous interpersonal statements. There are categories for (a) personal motives, (b) social motives, and (c) other motives.

Categories I to IV cover personal motives, the expression of emotion for Category I, the fulfillment of a desire for Category II, the affirmation of a possession right for Category III, and the enhancement of the ego for Category IV.

Categories V to VII cover social motives in that they create a social union between the self and another. In the Self-Referring Category V, the union is created reactively in that S responds to a statement of another by an imitative or "me too" reference to himself (e.g., "I'm making whip cream too"; "Me too"; "I'm making whip cream" /repetition of another's statement/), or by competitively referring the statement to himself (e.g., "Mine is bigger"). In the Joining statements of Category VI, the union is created actively in that S initiates the union (e.g., "Let's play house"). In both the Self-Referring and Joining

categories, both the self and the other are involved in parallel or similar activity. In the case of the Collaborative statements of Category VII, the union that is created and maintained involves role differentiation (e.g., "I'll be the mommy, and you'll be the baby"), rather than mere parallel or similar roles.

Categories VIII and IX cover other motives, not readily classified as either personal or social. Category VIII, Learning Implementing, serves a purely cognitive motive, implementing the child's search for knowledge. Since much of the learning implementation of the preschooler seems to occur in conjunction with the personal and social motives of Categories I through VII, the learning category score was restricted to those statements where the cognitive motive operates alone, independent of any personal or social motives (e.g., "What number is that?" or "What does the stomach do?").

The Reporting statements of Category IX can be defined by exclusion. They cover statements intended for interpersonal communication which do not satisfy the personal, social, and cognitive needs covered by Categories I through VIII. However, they also seem to serve a social function involving a sharing of experiences for its own sake, experiences concerning the self (e.g., "I'm getting another one"); concerning others (e.g., "Your hat is falling"); or things (e.g., "Look at the cement mixer").

2. Subcategory scores. Within each category, Subcategory scores designate the major means for implementing the function. For six of the nine categories, subcategory distinctions are based on the distinction between positive and negative means. For example, desire implementing by requesting "Crayon," represents a positive subcategory statement, while stopping a frustrator of desire, "No, stop it," represents a negative subcategory statement.[5]

3. Subscores. Within subcategories, Subscores designate the specific style or context involved in the implementation of a function. For example, stopping

a frustrator of possession rights by threats, or by sharing and postponing negotiations.

Additional scoring units. The set of additional scores consists of Appended scores, Nonscores, and Listener Designations.

1. Appended scores. Appended scores cover a variety of distinctions related to the function of a statement scored in any one of the nine categories. A partial list includes: Adult Listener; Child Listener; Question; Asserts Desire to Adult; Modulation (explanation, justification, etc.); Continuation in Conversation; Persistence Repetition (when no response); One Word (function inferred); etc.

2. Nonscores. The list of Nonscores can be found on page 6 above.

3. Listener Designations. The Listener Designation to Adult (Ad) or to Child (Ch) is added to the name of any speech score which is exclusively or almost entirely addressed to either an adult or to child listeners.

Scoring Method

Special methodological difficulties are also presented in qualitative studies of patterns of naturalistic speech usage by quantitative variations in verbal productivity, and by continuations or repetitions in conversations. The verbal productivity problem is usually dealt with by reporting each pattern as a percentage of the number of statements (Piaget, 1926; Bernstein, 1962) under the mistaken assumption that percent conversion eliminates distortions due to variations in total number of statements. The fact is that while raw frequency scores distort in the direction of giving excess weight to the scores of the talkative child, percent conversion distorts in the direction of giving excess weight to the scores of the quiet child. These distortions can be very serious in studies of early speech development. In the present study the number of scoreable statements per S varied from zero to more than 200.[6] To cope with this problem, we

have used what we call an interval score, which is the number of observation intervals in which a speech score occurs out of the total of 12 observation intervals per child. The interval score seemed a promising compromise, identifying qualitative differences in speech within a greatly attenuated range (maximum=12) of quantitative differences, and thus modulating the effects of distortions of both the talkative and the quiet child.

The interval score also promised to deal with the problem of continuations and repetitions in conversation, the latter being especially prevalent in the speech of preschoolers. If an S said, "Stop it," as much as 20 times during a single 3-minute interval, never to say anything like it again in the other 11 observations, he received a score of 1 for the score Stops Frustrator of Desire. However, if he were to repeat a statement like that in 5 of his 12 observed intervals, he would receive a score of 5. Data on the interval scores are supplemented by raw frequency of statements in the case of total number of spontaneous interpersonal statements, since this measure is of obvious interest.

Within each observation interval, each scoreable statement can be assigned a maximum of two Subcategory scores, one for a social motive if present, and one for a personal or other motive. Typically, a single Subcategory score suffices for each statement together with a qualifying Subscore. In addition, any number of Appended scores can be assigned to each scoreable statement. Nonscores are assigned to nonscoreable statements, one Nonscore for each such statement.

Abbreviated Form of FIS-P

For the Abbreviated Form of the FIS-P, recording procedures and scoring method are the same as for the Comprehensive Form. Only the scoring system itself is contracted. The contraction was effected so as to preserve all the major distinctions of the Comprehensive Form. Specifically, the Abbreviated Form consists of almost the entire list of Subcategory scores, one Subscore, and a few

Appended scores, with Listener Designations wherever they apply.

Category scores were eliminated because it needs to be demonstrated that the combination of all subcategories within each category is empirically justified. The list of Subcategory scores was shortened by six subcategories which involved defensive verbal counterattacks, after S had been verbally attacked in any of six different ways, each form of attack warranting its own Subcategory score. While some of the attack scores reached adequate levels of frequency, in the age range under study the defensive scores were very infrequent. For economy, they were dropped from the Abbreviated Form. The list of Subscores, most of which were infrequent, was entirely eliminated, except for a single Subscore for disagreeing in a collaborative discourse. This Subscore was not only high in frequency, but also seemed interesting from a theoretical point of view since Piaget (1926) has suggested that this kind of speech might have implications for cognitive development. The list of Appended scores was much abbreviated by eliminating scores which referred more to syntactic features (e.g., question format used) than to speech function, and also by excluding those items referring to intensity of affect accompanying a statement.

The following list describes all of the FIS-P scores of the Abbreviated Form, giving explanations and examples as needed for clarity:

FIS-P Scores: Abbreviated Form

Subcategory Scores

Category I. Expressive. Statement functions purely to express an emotion.

Subcategory (Negative)

"Ow"; "I hate this."

Subcategory (Positive)

"Yum-yum"; "Goodie."

Subcategory (Positive/Negative). Excited affect or any combination of positive and negative affect.

"Yikes!"; "Superman."

Category II. Desire Implementing. Statement functions to implement a personal desire for an object, for help, for permission, for general reassurance or attention. (Excludes desire requests and commands which serve to maintain a collaborative project or discussion /see Category VII/; requests for help that involve new learning /see Category VIII/; requests for attention which are ego-enhancing /see Category IV/; or that involve reporting on S's experiences and observations /see Category IX/.)

Subcategory (Positive): Asserts Desire

"Crayon"; "Can I have some?";[7] "Fix it."

Subcategory (Negative): Stops Frustrator of Desire[Ch8]

"No"; "Stop it"; "Teacher, he broke my building"; "I'll slug you."

Category III. Rights Implementing. Statement functions to implement possession rights involving objects, territory, turns, or roles (fantasy or real). The possession right is explicitly verbalized.

Subcategory (Positive): Asserts Possession Rights

"This is my dolly"; "I want to be the mommy."

Subcategory (Negative): Stops Frustrator of Possession Rights[Ch]

"It's mine" (grabs); "I had it first"; "Okay, you can have it, but remember to give it back to me."

Category IV. Ego-Enhancing. Statement functions to enhance S's ego, with context and tone showing evident pride.

Subcategory (Positive): Asserts Pride in Competence or Achievement, in Possessions, in Knowledge, or in Whole Self

"Look at my big house"; "I have new sneakers" (pride); "I know what

an A is"; "I'm four!"

Subcategory (Positive): Assumes Teacher Role Regarding Competence or Knowledge

"I'll show you how to do it"; "Not that way; this way" (pride)

Subcategory (Negative): Denigrates Competence or Achievements, Possessions, or Knowledge of Other[Ch]

"Your doll is small"; "She can't jump"; "That's junk"

Subcategory (Positive): Asserts Pride in Goodness, Cleanliness or Beauty

"We're sharing"; "Wasn't that nice of me?"

Subcategory (Negative): Denigrates Goodness, Cleanliness or Beauty of Other[Ch]

"You're cheating"; "You're dirty"; "She's naughty"

Subcategory (Negative): Denigrates Other in General Terms[Ch]

"Faggot"; "Baby"; "She's terrible"

Subcategory (Positive/Negative): Teases or Tests Limits. Playfully attacks peers, or the explicit or implicit rules of authority or reality.

"In your face" (holds play dough up); "Look, blood" (paints red on self); "That banana is real" (it's fake)

Category V. Self-Referring-Including. Statement functions to join S to Other by self-referring the Other's statements, activity or characteristics.

Subcategory (Positive): Me Too. Self-refers, drawing some parallel for Self.

"Me too"; "I listen to Batman too"; Other: "Mine is up on top" and S: "Mine is up on top"; Other: "I'm making a squeeze-squeeze" and S: "I'm making whip cream"

Subcategory (Negative): Me Better[Ch] Self-refers, competitively stating that he is better than Other.

"My daddy is bigger than your daddy"; "No, yours is smaller"

Category VI. Joining[Ch] Statement functions to join Other to S with S actively initiating the union.

Subcategory (Positive): Join Me[Ch]

"Hello"; "Are you my friend?"; "Let's go" (together); "Let's play house"; "Let's play with the blocks"; "Come to my party."

Subcategory (Negative): Excludes Self or Other[Ch]

"I'm not playing with you"; "You can't draw here" (with us); "Let's not play with her"; "You're not my friend."

Category VII. Collaborative[Ch] Statement functions to initiate or maintain a role-differentiated social interaction, with two or more Ss participating in a project, discussion or game. There may be action and talk, or only talk. (Includes Asserts Desire statements which maintain a project or discussion.)

Subcategory: Collaborative Discourse[Ch] Includes all Collaborative statements except those covered by the other Collaborative subcategories below.

"Put the block there" (block building together); "Hold it"; "First, I'll shoot and you fall down."

Subscore: Collaborative Disagreeing[Ch]

"We do not need any more water"; "No, he didn't move it."

Subcategory: Collaborative Dramatic Play[Ch] Collaborates while enacting role in dramatic play.

"Give me more, mommy"; "Stop that, baby."

Subcategory: Collaborative Chanting[Ch] Collaborates in chanting word game, exact repetition or different words.

Other: "Superman!" and S: "Superman!"; Other: "Red light stop" and S: "Green light go."

Subcategory: Collaborative Giving[Ch] Collaborates with a giving or nurturant statement.

"I'm making one for you"; "Don't cry, she'll be back soon."

Category VIII. Learning Implementing. Statement functions purely to implement learning about objective world, social world, biological world, or how to proceed in a task.

Subcategory: Pursues New Knowledge

"What does that say?"; "Why doesn't he talk?"; "Where is the stomach?"; "Is this the way?"

Subcategory: Restates Old Knowledge. Consolidates, practices, confirms or masters previously acquired knowledge. Also includes simple matter-of-fact corrections (not ego-involved) of other children's errors in knowledge.

"This is a dumptruck"; "Apple" (names picture or object); "This is half a cup"; "No, it's a rectangle."

Category IX. Reporting. Statement functions to share an observation, thought or experience with Other.

Subcategory: Reporting about Self. Includes attributes, possessions, activities, actions, productions and products, real and fantasied.

"Oh boy, I got lots!"; "I went to the circus"; "I'm going to crayon now"; "I'm drawing a monster"; "This (clay) is a monster"; "This is the sun and this is a girl" (drawing).

Subcategory: Reporting about Others. Includes attributes, possessions, activities, actions, productions and products, real and fantasied.

"Amy has new boots"; "He's mixing the cement"; "Johnny is running."

Subcategory: Reporting about Things. Includes animals and inanimate objects, in motion or static, pictorially represented or real.

"Look at the fish"; "It's raining."

Appended Scores

Adult-Listener statement. Statement addressed to adult listener(s). Excludes statements directed at both adults or children or diffusely directed statements.

Child-Listener statement. Statement addressed to child listener(s). Excludes statements directed at both adults or children or diffusely directed statements.

Asserts Desire^{Ad} Adult-directed statement in Asserts Desire subcategory.

Modulation. Statement contains explanation, justification, rationalization or attempt at verbal persuasion to qualify or support the function being implemented. Statements often contain or imply the word "because."

"You promised"; "No (sharing), because it's brand new"; "Because that way they'll fall"; "That was hard (justifying failure)."

Listener Designation

It can be seen that the only score with the Listener Designation to Adult (Ad) was the Appended score Asserts Desire to Adult. Indeed, this score was restricted to adult listeners by definition. Given the primal dependency of the child on adults for the fulfillment of his desires it seemed important to examine the child's desire requests to adults independent of his general desire implementing utterances.

For the scores with the Listener Designation to Child (Ch) the designation was arrived at on a rational basis,[9] taking into consideration the following factors: (1) the demands of the FIS-P scoring procedure, requiring that no adult-initiated or adult-shaped speech be recorded; (2) the definitions of the FIS-P scores themselves, some of which (especially the social motive subcategories) restrict the statement to peer listeners almost entirely (e.g., Collaborative Dramatic Play); (3) the inhibitory mechanisms which operate in adult-child relations (i.e., adults are not likely to grab a toy from a child, nor do children often denigrate an adult).

Reliability Assessment

Unlike cognitive and linguistic variables, which lend themselves to objective measurement, the FIS-P scoring scheme covers a variety of noncognitive personal and social motives (i.e., boasting, asserting possession rights) which are notoriously difficult to measure, since they involve a great deal of subjective judgment which endangers reliability. Nevertheless, psychologists have not shrunk from the difficult technical task in studies of noncognitive aspects of behavior other than verbal. Indeed, they have generally been willing to settle for reliabilities at the 70% level of agreement in this domain of measurement (see White, in press). This 70% level of agreement was accepted as adequate in the present study. Reliability of the Abbreviated FIS-P was evaluated as follows:

For interscorer agreement, two observers collected verbatim language samples simultaneously for a total of 37 3-minute intervals from 32 randomly selected disadvantaged and advantaged Ss of the preliminary sample. Interobserver agreement was assessed by interjudge correlations of the number of scoreable statements and the number of scoreable and nonscoreable statements, recorded by each observer for each time sample. The correlations were .91 and .95 respectively. Interscorer agreement was assessed by percent agreement for subcategory scores of the 144 statements recorded by both observers. The degree of agreement was 73%. This level of agreement promised satisfactory levels of reliability per S, since each S was to be observed for a total of 12 3-minute language samples.

For an assessment of the reliability of subject stability or consistency, the previous study of 57 4-year-olds (Schachter, 1971) contained a sample of 11 Ss who were observed by one observer. This sample made it possible to correlate performance on the first six 3-minute time samples with that on the second set of six time samples, independent of observer differences. Split-half reliability coefficients were calculated, following the usual procedure of applying the

Spearman-Brown formula to determine the reliability for all 12 time intervals. Coefficients were calculated for the total number of scored statements; reliability was .97. Coefficients were also calculated for those FIS-P scores which were produced by at least seven of the 11 Ss. There was a total of 12 such scores with adequate frequency. The median consistency coefficient of reliability was .67. This degree of consistency, given the small size of the sample, promised adequate levels of consistency with the study sample of more than 170 Ss. To further insure reliability, only those scores showing adequate frequency were studied (see Procedures below).

Factor Analysis

Factor analysis of the Comprehensive Form of the FIS-P was undertaken to shed light on the intercorrelations among scores. While it seemed premature to rely on factor scores in this early phase of the development of an instrument for the functions of spontaneous speech, so that the data of both the Developmental and Sociolinguistic Studies will be reported in terms of the FIS-P scores themselves, the results will also be discussed in the light of the clusters suggested by the factor analysis.

A centroid factor analysis, rotated with five factors, by the varimax procedure, was carried out on the data of the previous study of 57 4-year-olds noted above (see Schachter, 1971). The following list describes each factor, showing the component scores of the Abbreviated Form, if the factor loading reached .35. A loading of this size is considered fair in the present type of research (Cohen, 1966). For each Subcategory score, the Roman numeral of the category, I through IX, is designated. Appended scores are designated as such.

Factor Scores

Factor 1: Adult Oriented Talk (Dependency and Identification)

Asserts Desire^{Ad} (.75), Appended

Adult Listener (.70), Appended

Asserts Desire (.69), Category II

Modulation (.46), Appended

Restates Old Knowledge (.39), Category VIII

Denigrates Other-Goodness, etc.^{Ch} (-.37), Category IV

Factor 2: Aggressive Talk (Negative Self-Assertion)

Denigrates Other-General^{Ch} (.83), Category IV

Denigrates Other-Competence, etc.^{Ch} (.77), Category IV

Teases and Tests Limits (.59), Category IV

Stops Frustrator-Possession Rights^{Ch} (.52), Category III

Excludes Other^{Ch} (.43), Category VI

Expressive-Negative (.41), Category I

Stops Frustrator of Desire^{Ch} (.41), Category II

Denigrates Other-Goodness, etc.^{Ch} (.39), Category IV

Factor 3: Ego Thrust Talk (Positive Self-Assertion)

Asserts Possession Rights (.70), Category III

Me Better^{Ch} (.64), Category V

Collaborative Discourse^{Ch} (.63), Category VII

Collaborative Disagree^{Ch} (.62), Category VII

Denigrates Other-Goodness^{Ch} (.59), Category IV

Asserts Pride in Competence, etc. (.56), Category IV

Child Listener (.53), Appended

Modulation (.44), Appended

Stops Frustrator-Possession Rights^{Ch} (.43), Category III

Join Me^{Ch} (.42), Category VI

Assumes Teacher Role-Goodness^{Ch} (.38), Category IV

Factor 4: Peer Interaction Talk

Child Listener (.63), Appended

Join Me^{Ch} (.57), Category VI

Stops Frustrator of Desire^{Ch} (.55), Category II

Asserts Pride in Goodness, etc. (.46), Category IV

Collaborative Dramatic Play^{Ch} (.45), Category VII

Collaborative Giving^{Ch} (.43), Category VII

Collaborative Discourse^{Ch} (.43), Category VII

Asserts Pride in Competence, etc. (.36), Category IV

Assumes Teacher Role-Goodness^{Ch} (.36), Category IV

Factor 5: Linking to Others with Words (Interdependence)

Reporting About Self (.67), Category IX

Collaborative Chanting^{Ch} (.56), Category VII

Me Too (.42), Category V

Asserts Desire (.39), Category II

Asserts Desire^{Ad} (.36), Appended

Collaborative Giving^{Ch} (.36), Category VII

Reporting About Things (.36), Category IX

It can be seen that Factors 1 and 5 both have in common the components Asserts Desire and Asserts Desire to Adult. However, Factor 1 emphasizes adult dependence and identification, since it also contains the component scores Adult Listener and Modulation. On this basis, we have called this factor Adult Oriented Talk (Dependency and Identification). On the other hand, Factor 5 seem to emphasize a more general interdependence with its component scores Reporting, Me Too, Collaborative Chanting, and Collaborative Giving. On this basis, we have called this factor. Linking to Others with Words (Interdependence).

Factors 3 and 4 also have a number of scores in common. Both contain the

component scores Child Listener, Collaborative Discourse, Join Me, and Asserts Pride in Competence. However, Factor 3 emphasizes positive self-assertion with both Subcategory scores of the Possession Rights category, plus Me Better, Collaborative Disagree, and Assumes Teacher Role-Competence. On this basis, we have called this score Ego Thrust (Positive Self-Assertion). On the other hand, Factor 4 seems to emphasize the more general give and take of everyday peer verbal interchange with its component scores Stops Frustrator of Desire, Collaborative Dramatic Play, and Collaborative Giving. On this basis, we have called this factor Peer Interaction Talk.

Finally, Factor 2 seems to combine all the negative subcategories in all the categories, the denigration scores, the scores covering attempts to stop a frustrator, the teasing score, the excluding score and the negative expressive score. On this basis, we have called this factor Aggressive Talk (Negative Self-Assertion).

III. DEVELOPMENTAL STUDY

To generate hypotheses concerning the development of the functions of interpersonal speech, it seemed necessary to make certain assumptions concerning the development of the underlying structure of speaker-listener or self-other relations. Fortunately, the formulations of Piaget (1926, 1969) provided such a framework of necessary underlying assumptions concerning self-other differentiation. Namely, Piaget posits a primary adualistic social state, undifferentiated with regard to the self and other (Piaget /1926/ called this phase and its manifestations in speech and thought "egocentric"), a gradual emergence of significant self-differentiation (which Piaget places at age 3) (Piaget and Inhelder, 1969), and a secondary social state involving mutuality and reciprocity between the increasingly differentiated self and other (Piaget /1926/ called this phase and its manifestation "socialized" and places the shift from egocentric to socialized stages at age 7). These formulations made it possible to organize the FIS-P category scheme into a tentative developmental sequence as follows:

Personal motive subcategories. Categories I through IV seem to reflect an increasing ego-differentiation in that the Expressive statements of Category I (e.g., 'Ouch") seem to require no ego-differentiation. The Desire Implementing statements of Category II (e.g., 'More paste") seem to require a differentiation only of momentary need states. The Possession Rights Implementing statements of Category III (e.g., "That's mine") seem to require a self-schema which transcends time so that concrete objects, territory, etc., can be viewed as belonging or not belonging to the self beyond the present moment. Finally, the Ego-Enhancing Category IV (e.g., "Look at my big house!") seems to require the development of a self-schema with lasting and "abstract" attributes (competence, goodness, etc.)

which S can boast about.

Social motive subcategories. The social motives of Categories V through VII also seem to reflect a continuum of underlying self-other differentiation. The Self-Referring-Including Me Too statements of Category V seem to reflect a minimum of differentiation with S imitatively referring to himself any statement the other has said (e.g., Other: "I'm making whip cream" and S: "I'm making whip cream too"), as if the distinction between the self and the other is blurred. The Joining statements of Category VI (e.g., "Let's jump") seem to reflect an increasing self-other differentiation in that the child actively seeks out a union with another rather than reactively imitating another. Finally, the Collaborative statements of Category VII (e.g., "The garage goes there") seem to reflect the highest degree of self-other differentiation in that role differentiation is required with the self and listener taking complementary positions in a larger project or a discussion.

Other motive subcategories. Categories VIII, Learning Implementing (e.g., "What's that?"), and IX, Reporting (e.g., "I'm going to get the paste") were placed at the end of the list of categories because they seem to stand outside the developmental sequence covered by Categories I through VII. While the nature of the learning implementing response might be expected to change with increasing ego-differentiation, a widespread occurrence of learning implementing statements of the word naming variety, e.g., "Dumptruck," has been consistently reported at the earliest levels of language development (Erwin-Tripp, 1966). As for the Reporting statements of Category IX, an appeal to common experience readily suggests that this kind of sharing of experiences occurs throughout the life cycle. However, Piaget's (1926) data on the collective monologue would lead one to expect that these kinds of statements would be a prominent feature of a relatively undifferentiated state of self-other development, where the line is blurred

between thinking to oneself and thinking aloud or sharing one's thoughts with others.

Appended scores. Self-differentiation theory also provided some direction for a developmental analysis of the Appended scores. Adult-Listener statements and Asserts Desire to Adult seem immature in the light of the child's primal undifferentiated dependency on adult caretakers. Child-Listener statements seem more mature, with an expected increase with age, of differentiation between the self and other children.

The Appended score, Modulation, also seemed to reflect a growing self-other differentiation since the explanations, justifications, etc., involved seem to reflect an expected increase with age in the ability to take the point of view of the listener, which Piaget (1926) describes as the main feature of his more mature socialized stage. In the same context, it also seemed worthwhile to examine the results for the score Collaborative Disagree, which is viewed by Piaget as a socialized speech form (Piaget, 1926).

The Developmental Study was designed to examine deductively these hypothetical developmental sequences concerning the Subcategory scores for personal motives, social motives, and other motives, and the Appended scores. It was also planned to examine inductively those Subcategory scores and Appended scores which cluster together during the course of development from 2 to 5, and to relate these clusters to the factor scores.

Subjects

Table 1 describes the total group of children studied. Ss consisted of five samples, one small longitudinal sample of four advantaged whites (2 boys and 2 girls) observed at ages 2-0, 2½, 3-0, 3½, 4-0 and 4½; and a large cross-sectional group of 170 Ss consisting of four sociolinguistic samples, advantaged white, advantaged black, and disadvantaged black, all groups of above average mean IQ

Insert Table 1 about here

(Binet mean above 100), plus a disadvantaged black group of below average mean IQ. With one exception, the four cross-sectional samples included subgroups of 10 each at ages 2½, 3½, 4½ and 5½, with an equal number of boys and girls in each subgroup. The one exception was the disadvantaged black group at age 4½, which included an additional 10 Ss, 5 boys and 5 girls, with all Ss of average Binet IQ (93 to 105).

It can be seen that the basic sample did not constitute a balanced design. No disadvantaged whites were selected for the study because the focus of concern was the black urban ghetto, as has been the case in most language and poverty research (see Williams, 1970). In addition, no below average or average IQ advantaged groups, either black or white, were studied. The IQ imbalance resulted from the naturalistic manner of selecting Ss, namely, both disadvantaged and advantaged Ss were located in their own communities in the typical kinds of preschool settings that these communities currently provide. For the disadvantaged black Ss, these preschool settings consisted of publicly funded day care centers, parent-child centers, and Head Start centers. At these centers, Ss were available covering the full range of IQ. For the advantaged whites and blacks, the preschool settings consisted of privately funded, high tuition, middle-class nurseries, and informal play groups for some of the 2-year-olds. In these middle-class settings, only above average IQ groups presented themselves, with Binet mean above 100.

Consequently, to exercise some control over the IQ variable while comparing advantaged and disadvantaged Ss, the disadvantaged group was divided into upper-half and lower-half IQ groups. Specifically, this latter procedure was followed at the 2½, 3½ and 5½ year levels. At the 4½ year level, the first level to be studied, a more ambitious plan was undertaken with three IQ groups formed, top third, average (Binet IQ 93-105),[10] and bottom third. It can be noted in Table 1

that the top third at age 4½ is comparable in mean IQ (114.7) to the means of the top half at the other age levels (103.7, 111.6, 115.3), while a combination of the average and bottom third IQ groups at 4½ is comparable in mean IQ (87.0) to the means of the bottom half at the other age levels (82.3, 91.8, 82.6). On this basis, the data for the bottom two-thirds sample at age 4½ has been averaged for both the Developmental and Sociolinguistic Studies, to compare with the lower IQ samples at the other age levels. Table 1 shows the averages for the bottom two-thirds sample for age, IQ, and verbal productivity measures.

It can be seen in Table 1 that at all age levels, the mean IQ scores for the higher IQ disadvantaged groups are all above 100, as are the means for all advantaged groups, both black and white. The longitudinal sample was also above average in IQ.

In selecting the sample, disadvantaged was defined in terms of the national guidelines for poverty level, family income below $4,000. Advantaged was defined as upper middle class both in terms of education (college, professional, artistic or technical) and occupation (managerial, professional, artistic or technical). There was no middle group with regard to social class (i.e., fireman, policeman, etc.). Black ethnicity was defined as Afro-American parents to exclude Caribbean and African blacks; white ethnicity represented the heterogeneous population attending private preschool classes in New York, including white Protestants, Irish, Jews, Italians, etc. Children with physical (including sensory, motor, or neurological) handicaps were excluded. There were also no sibling pairs allowed.

In selecting the preschool centers, only those with a free play period as prescribed by the whole-child approach (see above) were chosen. For the longitudinal sample, the free-play-period conditions were simulated by locating a family with a playroom physically equipped with all the accoutrements of the nursery schools under study, and by requiring that the adults not initiate any

interactions (verbal or otherwise) with the children. The longitudinal sample was created on the basis of personal contacts. The children were neighbors of a member of the research team. All four children were playmates and neighbors of each other.

For the cross-sectional sample, advantaged centers were selected so that there might be some ethnic variety among the whites, and black children as well as white. Most of the advantaged whites were located in minimally integrated schools, while about half of the advantaged blacks were located in well integrated schools. The remaining advantaged black data were collected at private nursery schools in middle-class black communities, in northern Manhattan and north Bronx. Disadvantaged centers were located in poverty communities in the New York area, south Bronx, lower east side, south Jamaica, Harlem and central Newark. Since 2-year-olds were difficult to locate, several disadvantaged centers were selected because they had 2-year-old groups, and the older children were studied as well. Altogether, there were 20 centers studied and 39 group settings or classes.

For all four cross-sectional samples, adult-child ratio was well matched, with ratios of 1 to 3 and 1 to 4 for the 2½-year-old groups, and ratios of 1 to 5 to 1 to 8 for the 3½-, 4½-, and 5½-year-old groups. In centers for 3-year-olds and above, there were generally 10 to 16 children in attendance, a head teacher, and one or two assistant teachers. The centers for 2-year-olds were more variable, most with two teachers and 7 or 8 children in attendance, but some with one teacher and 3 or 4 children, and one with 7 to 10 adults and 20 to 25 children. For the longitudinal study, all four mothers were present at all observations, with not one assigned the role of teacher. The mothers sat on the sidelines and chatted quietly among themselves, responding to the children when approached.

The ethnicity of peers and adult staff was largely the same as that of the

Ss, though for the advantaged black group in integrated centers there were both black and white classmates and teachers, and the disadvantaged blacks were sometimes in preschools with a few Puerto Rican children and teachers. The social class of peers and assistant teachers was also the same as that of Ss, since they usually all lived in the same community. Many of the disadvantaged centers were located in city housing projects where most of the children and assistant teachers lived. All head teachers were middle class and assistant teachers were often in training aspiring to middle-class status.

The observers for the 4-year-olds consisted of the two observers who participated in the reliability assessment (see above). For the 2-, 3-, and 5-year-olds, there was another observer who was trained to reach the same level of reliability. All observers were white. There were two main Binet testers, one black and one white. Binet results were withheld from the observers; slips occurred in only a few cases.

Subjects and Verbal Productivity

The problem of variations in verbal productivity is so important for studies of qualitative differences in speech functioning that it merits careful consideration. It has already been noted that the usual procedure of percent conversion introduces its own form of distortion, while it attempts to remedy the distortions that follow from the use of raw frequency data. The interval measure was introduced in an attempt to attenuate both of these forms of distortions. Nevertheless, it seemed essential to examine differences among the samples under study in both the total number of intervals in which scoreable speech occurred and in the raw frequency of scoreable statements.

Table 1 shows the means and standard deviations for all five samples for both the total statements and the total intervals. To test the effects of sociolinguistic group, age, and sex, 3-way analyses of variance (with replication for sex)

were carried out on the four cross-sectional samples. The longitudinal sample was not included in these analyses because of the special conditions under which these data were collected. The results for both measures showed significant main effects for both sociolinguistic group (total statements $F = 4.73$, $p < .01$; total interval $F = 6.06$, $p < .001$) and age (total statements $F = 17.46$, $p < .001$; total interval $F = 3.12$, $p < .05$), and a significant interaction between sociolinguistic group and age (total statements $F = 2.05$, $p < .05$; total interval $F = 2.01$, $p < .05$). Scheffé tests showed that the two disadvantaged groups (higher and lower IQ) showed a significant age increment from age 2 to 5, while the two advantaged groups (black and white) did not, and that the advantaged black group showed significantly higher verbal productivity than the disadvantaged black lower IQ group in the age range 2½ to 4½, but that there were no other significant differences among sociolinguistic groups at any age level.

In the course of further examining the nature of this complex interaction between age and sociolinguistic group, it became apparent that the measures of total verbal productivity were meaningless in that the totals combined two completely different kinds of statements, those addressed to adult (Adult-Listener score) and those addressed to children (Child-Listener score). Figure 1 shows that both from a developmental and a sociolinguistic standpoint, Adult-Listener and Child-Listener scores are completely disparate.

Insert Figure 1 about here

Figure 1 shows the means for the Adult-Listener and Child-Listener scores for the interval measure for all four cross-sectional samples at all four age levels. The comparable age curves for the raw frequency measures were virtually the same, so that only the results on the interval measure were analyzed. Analyses of variance (sociolinguistic group by age by sex /with replication for sex/) of the means of Figure 1 show significant age effects for both scores, with Adult Listener showing a significant decrease with age from 2 to 5 ($F = 6.11$, $p < .001$)

and Child Listener showing a significant increase ($F = 12.88$, $p < .001$). There was also a significant effect of sociolinguistic group for both the Adult-Listener score ($F = 8.22$, $p < .001$) and the Child-Listener score ($F = 4.96$, $p < .01$). Scheffé tests to analyze the source of the significant sociolinguistic effect show that the advantaged white group produced significantly more adult-addressed statements than either of the disadvantaged groups ($p < .05$ for the higher IQ group and $p < .001$ for the lower IQ group), with no significant difference between black and white advantaged groups, or between higher and lower IQ disadvantaged groups. Scheffé tests for the Child-Listener score showed that the advantaged black group produced significantly more child-addressed statements than either of the disadvantaged groups ($p < .01$ for the higher IQ group, and $p < .01$ for the lower IQ group), with no significant difference between black and white advantaged groups, or between higher and lower IQ disadvantaged groups. There were no significant interactions for either score. There was a significant sex effect ($F = 6.89$, $p < .001$) for adult-addressed speech, with girls producing more of these utterances.

It can be seen that the results of both the Developmental and Sociolinguistic Studies will need to be discussed in the light of these developmental and sociolinguistic differences in the totals for adult- and child-addressed statements, rather than in relation to total verbal productivity, which obscures these listener-related differences.[11]

Procedures

Recording and scoring procedures were followed in accordance with the Abbreviated Form of the FIS-P described above. For the cross-sectional data, seven out of the 170 Ss dropped out of the program after 6 to 10 intervals of observations. Their data were retained, and extrapolation was made to 12 intervals. One of the girls in the longitudinal sample moved to California at 4½ years; again the data at the 4½ year level were retained and extrapolation was made to four Ss. For a few twos, Catell Infant IQ Scales were administered when a Binet basal was not attained.

Results and Discussion

Tables 2 through 6 show the developmental findings for each of the five samples, Table 2 for the longitudinal sample at ages 2-0, 2½, 3-0, 3½ and 4½, and Tables 3 through 6 for each of the four cross-sectional samples, advantaged white, advantaged black, disadvantaged black higher IQ, and disadvantaged black lower IQ, respectively, each cross-sectional sample with age-level means at 2½, 3½, 4½ and 5½. At every age level for all five samples, mean FIS-P speech scores are listed in terms of the mean number of observation intervals, out of a total of 12, in which each speech score occurred. For the disadvantaged black 4½-year-old sample with the additional average IQ group, Table 6 shows two sets of results, one for the lower third IQ group (N = 10), and one combining the lower third with the average IQ group (N = 20). Only the latter combined results will be discussed since the combined groups together are a better match in IQ with the below average IQ groups of ages 2½, 3½ and 5½, than is the lower third 4½-year-old group itself, as has been noted.

Insert Tables 2-6 about here

To reduce the findings of Tables 2 through 6 to manageable proportions, the results for all five samples are summarized in Table 7. Table 7 shows the number of the five samples with an age increase, decrease, or neither, for those speech scores with adequate frequency. Adequate frequency is defined as more than one of the five samples with one age level mean greater than 1.00 interval. Eight of the 33 scores of the Abbreviated Form of the FIS-P were excluded from Table 7, on the basis of low frequency,[12] leaving 25 speech scores. In addition, because the longitudinal sample is the only one with data at ages 2-0 and 3-0, these data are excluded from the summary Table 7, though they will be discussed wherever they provide additional information.

Insert Table 7 about here

In Table 7, where all five samples show the predicted age increment, the Sign test is significant at the .03 level (one-tailed test).[13] Brackets in Table 7 denote that a Subcategory score is inconsistent with the findings for the other subcategories within the same category. In addition, any one sample with an age pattern which deviates from the modal age pattern for a given score is identified in Table 7 by the following symbols: Lo for longitudinal, AW for advantaged white, AB for advantaged black, DBH for disadvantaged black higher IQ, and DBL for disadvantaged black lower IQ.

The results of Table 7 will be analyzed deductively, in relation to the developmental hypotheses outlined above, regarding Subcategory scores for personal, social, and other motives, and for the Appended scores. The findings will then be synthesized in relation to the way the scores cluster together at the age levels from 2 to 5, in relation to the factor analyses at age 4, and in relation to the age decrement which has been found for adult-addressed statements and the age increment for child-addressed statements.

Developmental Findings: Deductive Analysis

Personal motive subcategories. It will be recalled that theoretical considerations concerning self-differentiation suggested a developmental continuum of speech function for the personal motive categories such that Expressive (Category I) and Desire Implementing (Category II) statements were viewed as immature speech patterns since they require little ego-differentiation, while Possession Rights Implementing (Category III) and Ego-Enhancing (Category IV) were viewed as increasingly more mature, requiring increasing ego-differentiation. The assertions of pride (boasting) and denigrations of the Ego-Enhancing category were expected to be the most mature since they require the full development of an ego-schema, with attributes to boast about. The results for the personal motive subcategory scores tend to support this hypothesis of a developmental continuum.

Table 7 shows that Expressive and Desire Implementing subcategories show little evidence of any increase with age (sample DBL for two of the three subcategories), and some evidence of decrease with age for Desire Implementing (samples Lo, AW, and AB for one subcategory; sample Lo for the other). Possession Rights Implementing shows somewhat more evidence of increase with age (sample DBL for one subcategory; samples DBL and DBH for the other), and almost no evidence of decrease with age (sample AB for one subcategory). Finally, the subcategories of Ego-Enhancing, Asserts Pride in Competence, etc., and Denigrates Other-Competence, etc., show increases with age for all five samples, a statistically significant increment for both of these ego-enhancing subcategories.

The hypothesis of a developmental continuum for the personal motive subcategories is further supported by the data of the longitudinal sample at age 2-0. Table 2 (column 1) shows the overwhelming dominance of Desire Implementing speech at the youngest age level studied, with a mean score of 6.8 intervals for Asserts Desire, and 2.0 for Stops Frustrator of Desire. Next in frequency for the personal motive subcategories is Possession Rights Implementing with a mean of .5 for Asserts Possession Rights and 1.5 for Stops Frustrator of Possession Rights. The most mature Ego-Enhancing statements have zero frequency of occurrence at age 2-0.

It may be noted that the developmental hypothesis would be even more strongly supported if Category I, Expressive, were altogether eliminated from the Developmental continuum. Two of its three Expressive subcategories, Positive and Negative, have already been eliminated from Table 7 on the grounds of inadequate frequency. If we eliminate the remaining Expressive subcategory, Positive/Negative, Table 7 shows that for Category II there are three samples with age decrements, for Category III there is one, and for Category IV there are none, so that the age decrement as well as the age increment data would support the developmen-

tal hypothesis. A reasonable case can be made for excluding the Expressive category from the nine major interpersonal speech categories, on the grounds that it is often unclear whether the child intends his expressive outburst for intrapersonal catharsis or for interpersonal communication.

It may also be noted in Table 7 that the only sample showing an age increment for either Category I or II is the disadvantaged black lower IQ group (DBL). As can be seen in Table 1, this group talked so little at age 2½ (a mean of 7.3 intervals vs. 10.8, 11.1, 10.4, and 9.8 for the other four samples) that it inevitably shows age increments for almost all the FIS-P scores within the age range under study (see Table 7).

Otherwise, the only inconsistency with the hypothesis of a developmental continuum from Categories I through IV is the finding for Teases and Tests Limits, which shows no consistent age increment, though it is one of the subcategories of Category IV, Ego-Enhancing (see bracketed item, Table 7). The significant age increments shown for the boasting and denigrating subcategories of Category IV suggest that Teases and Tests Limits may be incorrectly placed in this Ego-Enhancing category. In contrast with boasting and denigrating, the face validity of teasing as an ego-enhancing statement is easily open to challenge.

In any case, the really impressive aspect of the Ego-Enhancing findings is the consistency of the age at which a sharp increase in boasting occurs for all five samples. Figure 2 portrays in graphic form the findings on boasting (i.e., the FIS-P score Asserts Pride in Competence, etc.) which are shown in Tables 2 to 6. It can be seen that a sharp increase in the means occurs at age 3½ for all four cross-sectional samples (from 1.5 to 2.8 for AW, 1.6 to 2.8 for AB, .7 to 3.1 for DBH, and .8 to 2.8 for DBL) and at age 3-0 for the longitudinal sample (from 1.0 to 3.5), the latter being the only sample with data available for children age 3-0. Also for all five samples, Figure 2 shows that once the sharp age

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Insert Figure 2 about here

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increment takes place, the rate of occurrence of boasting statements generally levels off throughout the age range under study.

This abrupt shift in the productivity of boasting utterances is strongly supportive of the hypothesis of an abrupt underlying structural change in the development of ego-differentiation at around age 3. It should be noted that psychoanalysts as well as Piaget (Piaget and Inhelder, 1969) have pointed to such a developmental shift in ego-differentiation at age 3. Freudians speak of the onset of the phallic-oedipal period, with the emergence of much boasting and intensive self-assertion, reflecting a new sense of self (Erikson, 1963). The present data seem to extend and amplify these Piagetian and psychoanalytic concepts regarding ego-differentiation to the study of the functions of everyday interpersonal speech from 2 to 5.

Social motive subcategories. It will be recalled that considerations concerning the development of self-other differentiation suggested a developmental continuum for the social functions of speech as follows: The Self-Referring-Including Category V seemed most immature, the Me Too repetitions requiring a minimum of self-other differentiation. The Joining Category VI seemed to require an increasing degree of self-other differentiation, since the child actively creates a union with another. The Collaborative Category VII, which requires evidence of role differentiation, seemed to be the most mature. The results tend to support this developmental continuum hypothesis (see Table 7). Table 7 shows that the Me Too statements of the immature Self-Referring-Including Category V show an increase with age only for the DBL sample, who show increases with age for almost every score, as has been pointed out. On the other hand, the Joining statements show increases with age for most of the five samples. Most impressive is the fact that the Collaborative Category VII shows an increase with age for all five samples for Collaborative Discourse, Collaborative Disagree and Collab-

orative Dramatic Play, all statistically significant increments ($p < .03$). Also in support of the developmental continuum hypothesis is the 2-0-year-old data of the longitudinal sample (Table 2, column 1). Table 2 shows Me Too and Join Me statements at age 2-0, but almost zero Collaborative statements. Indeed, Collaborative Discourse, like Ego-Enhancing, seems to show an abrupt increase in frequency, at ages 3-0 or 3½, for all but one of the samples (advantaged white), suggesting that the capacity for such collaboration is related to the pivotal ego-differentiation that seems to emerge at this age.

The results that are inconsistent with the developmental continuum hypothesis for the social motives (see bracketed items, Table 7) suggest that the category system may need some revision as follows: The Me Better subcategory (see Self-Referring-Including Category V) which shows itself to be a mature speech function, because all five samples show an increase with age, might better be placed in the more mature Ego-Enhancing category. Like the latter, Me Better statements involve boasting, but a boasting of a competitive kind, indicating that S is superior to the other. Me Better statements were placed in the Self-Referring-Including category because, like Me Too statements, they usually involve a self-reference following another's statement (e.g., 'Mine is good"; 'Mine is better"). However, it appears that Me Better statements, though they often involve self-references, may need to be viewed as mature kinds of self-references since they are likely to require the same degree of self-differentiation that any and all boasting statements seem to require.

On the other hand, Collaborative Chanting statements (see under Category VII, Table 7), which are also similar to Me Too statements in that both often involve repetitions of what the other is saying, should probably be placed together with the Me Too subcategory in Category V. The data indicate that both of these repetition forms show little tendency to increase with age. Finally, the Collabora-

tive Giving subcategory may not have shown the expected age increment because seemingly more mature nurturant responses (e.g., "Don't cry") were classified together with what are probably more immature responses (e.g., S extending an object toward another with the simple word "Here"). The latter simple response occurred with even our youngest Ss. Some refinement of this subcategory seems indicated to distinguish levels of complexity here.

Other motive subcategories. The other speech functions, Learning Implementing and Reporting, were assumed to operate at all levels of ego-differentiation. In fact, the Learning Implementing, Restates Old Knowledge subcategory, though it shows no consistent age increase or decrease for any of the five samples, does show an early peak for all but the DBL sample, followed by a drop and a suggestion of a possible later increase for three of the samples (see Tables 2-6). This early peak, and possible later rise, is interesting from the point of view of the word-naming function of speech, frequently described as occurring in the very early phases of speech development (Erwin-Tripp, 1966). In the FIS-P scoring system, word naming (e.g., "Dumptruck," pointing) is scored as Restates Old Knowledge, as are later much more elaborate restatements of knowledge, like "The green ones are the weekdays" (pointing to calendar). The data suggesting an early peak for this score, together with the suggestion of a later increase with age, suggest that this subcategory score might better be broken down into two subscores, one for the early word naming, and another for the later more elaborate restatements of factual information. Regarding the Reporting statements, Reporting about the Self and Reporting about Things seem to follow the predicted developmental course since Table 7 indicates no age increase for any of the samples except for the DBL sample, who show increases for almost every score. However, Reporting about Others shows an age increase for three samples. Since these statements were almost exclusively about peers, this increase seems related

to the increase with age in statements to a child listener (see Appended scores, Table 7). Reporting about Others should possibly be moved to one of the social motive categories.

Again the longitudinal sample, with data available at the 2-0 level, tends to support the developmental hypothesis that the Learning and Reporting categories are immature. Table 2 (column 1) shows that by age 2-0 Reporting statements are already at very high levels, with means from 2.8 to 4.5 for the three subcategories, about as high as they will ever get in the age range under study, 2 to 5 years. The Learning-Restates Old Knowledge subcategory, with a mean of 1.0 is also as high as it will ever get. Only for the Learning-Pursues New Knowledge subcategory is the 2-0 mean clearly lower than at later ages. However, it needs to be noted that the longitudinal sample is completely atypical relative to the other four samples in relation to this score, and only in relation to this score. The longitudinal sample is far more productive than the other samples on Learning-Pursues New Knowledge. Whether this is because mothers were present for the longitudinal sample, or whether it is related to their high IQ (mean of 152.2, see Table 1), this interesting tangential finding merits further investigation.

Examining the 2-0-year-old data of the longitudinal sample (Table 2, column 1) it can be noted how the early maturing Reporting and Desire Implementing statements dominate the speech at this early age level, with means ranging from 2.0 to 6.8. Next, but much lower in rate of occurrence, are Possession Rights statements, Me Too, and Learning statements, with means from .5 to 1.5. Almost at zero rates are Ego-Enhancing and Collaborative statements, the late maturing personal and social motives, respectively.

Appended scores. Regarding the Appended scores, Adult Listener and Asserts Desire to Adult, ego-differentiation theory predicted a decrease with age, reflecting an increasing differentiation of self from the primary dependent adult

caretaker relationship, while Child Listener was expected to increase with age reflecting the increasing interaction between the newly differentiated self and his differentiated peers. In addition, the Appended score Modulation and the Subscore Collaborative Disagree, two scores which seemed to cover more socialized forms of expression, were expected to increase with age, reflecting an increased concern for the feelings of the other, as it developed with increasing self-other differentiation.

The results of the analyses of variance on Adult Listener and Child Listener have already been reported, showing a significant age decrement for the former and increment for the latter. The less powerful Sign test which is being applied in the Developmental Study shows a significant increment for Child Listener, with all five samples increasing with age. For Adult Listener, all but the DBL sample show age decrements. Asserts Desire to Adult decreased with age for two samples, and no sample showed an increase with age.

The socialized forms of expression, Modulation and Collaborative Disagree, both show increases with age for all five samples (significant at the .03 level). Indeed, Tables 2 through 6 indicate that there is a tendency for both of these scores to show a sharp rise at ages 4½ or 5½ following the sharp rise of Ego-Enhancing and Collaborative Discourse, which seems to occur at ages 3-0 or 3½. The data suggest that these sharp increases in socialized forms of speech usage may depend on the abrupt changes in self-other differentiation reflected in the earlier sharp rise in Ego-Enhancing statements.

To summarize the above findings, the data support the hypotheses concerning developmental continua of speech function reflecting an underlying developmental continuum of self- and self-other differentiation. Namely, the personal functions of speech which seem to reflect little self-differentiation (e.g., subcategories of Desire Implementing) show no tendency to increase with age, while those

which reflect increasing levels of ego-differentiation (e.g., Possession Rights Implementing and Ego-Enhancing subcategories) show increasing evidence of age increments in all five samples. Indeed, the boasting shows an abrupt increase around age 3, suggesting an abrupt underlying structural change in the ego-schema. The same considerations hold for the social functions of speech. Those which seem to require less self-other differentiation (e.g., the Me Too subcategory) show little evidence of increasing with age, while those requiring the greatest self-other differentiation (e.g., Collaborative Discourse and Dramatic Play subcategories) show evidence of increasing with age in all five samples. Indeed, the latter show a continuing increase after age 3. As for the other functions, Learning Implementing and Reporting, the data on subcategories Restates Old Knowledge, Reporting about the Self, and Reporting about Things indicate that these are early forms of speech function which maintain the same level of frequency throughout the age range under study. The data also indicate that Adult-Listener statements and Asserts Desire to Adult are immature speech forms, while the number of Child-Listener statements show a continuing increase with age, after age 3. Finally, the results show that socialized speech forms, including Modulation and Collaborative Disagree, show substantial increases in frequency after ages 4 and 5.

Developmental Findings: Inductive Synthesis

If we next examine these speech findings, as they cluster together during the course of development, in relation to the factor analysis and in relation to the developmental course of adult- and child-directed speech, interesting overall developmental patterns suggest themselves. Namely, age 3 seems to be pivotal in the development of preschool patterns of everyday speech usage. At this age, Ego-Enhancing statements show a sharp rise, and a period of increasing verbal interaction with peers begins, characterized by self-other differentiation, as

manifested in Joining and Collaborative statements. In addition, at ages 4 and 5 socialized speech forms which take into consideration the needs of the other (Modulation and Collaborative Disagree) begin to emerge.

Before this pivotal shift at age 3, patterns of speech function consist mainly of the immature personal motive Desire Implementing, the immature social motive Me Too, and the two early appearing other motives, Learning Implementing and Reporting about Self and about Things. These Subcategory scores, together with the Appended score Asserts Desire to Adult, appear early and proceed to maintain about the same frequency from age 2½ to 5½, with some samples showing a decrease for a few scores. Also, before the 3-year age level, adult-listener talk is at its highest level and proceeds to decrease significantly throughout the age range under study.

The question arises as to whether this diverse collection of early speech functions, namely, Asserts Desire, Me Too, Reporting about the Self and Things, and Learning Implementing, together with the Appended score Asserts Desire to Adult, can be said to constitute a coherent functional unity, defining a primary pattern of speech function in the years before age 3. It does seem possible to think of all these forms in the context of the primary undifferentiated mutual interdependence of infant and caretaker, especially since they are associated with a period of maximum talking to adult caretakers. In this context, continually asking the other to fulfill one's desires, continually including oneself into the verbal-social network by Me Too self-references, repeatedly reporting messages as to one's actions, observations, etc., and asking for or practicing new words (which is the early form of the Learning Implementing category) would seem to make up a functional unity which could be called Primary Socially Interdependent Speech. Altogether, this speech pattern seems like a perfect fit for the caretaker's needs for information, so she can effectively carry out her role

in the mutually interdependent relationship. She needs to know what the child desires, she needs to see that he is included in the family network, she needs to be continually posted on his actions and whereabouts, and she continually needs to feed him new words so that he can better inform her of his needs, actions and whereabouts.

This formulation of a functional unity for Primary Socially Interdependent Speech finds support from the factor analysis at the 4-year level. Indeed, Factor 5, Linking to Others with Words (Interdependence), is very similar to the cluster which has been called Primary Socially Interdependent Speech. Both the latter cluster and Factor 5 contain the component scores Asserts Desire, Asserts Desire to Adult, Reporting about the Self, Reporting about Things, and Me Too.

Just as these primary speech forms suggest a functional unity, the scores which are addressed to peers suggest another functional unity. The cluster with the Listener Designation to Child might be called Secondary Sociable Speech since most of the Subcategory scores are in the social motive categories, and most show a continuing increase after age 3. Here again the factor analysis at the 4-year level supports this formulation of a functional unity. Factor 4, Peer Interaction Talk, contains the component scores Child Listener, Join Me, Collaborative Dramatic Play, and Collaborative Discourse, all of which qualify for what we have called Secondary Sociable Speech, since all are social motive scores showing a continuing increment after age 3.

Finally, the pair of socialized speech forms, Modulation and Collaborative Disagree, have already suggested a functional unity involving socialized speech forms. They seem to emerge at high frequencies at ages 4 and 5, later than Primary and Secondary Speech. They might therefore be called Tertiary Socialized Speech.

It can be noted that each of these speech patterns contains some form of

the word social in its title. This designation serves to emphasize that all of these speech forms are social, or intended for interpersonal communication, as viewed from the perspective of the child, as has already been pointed out. It is necessary to emphasize this matter of perspective in the study of speech functions because Piaget and Inhelder (1969) point out that the long-standing controversy regarding the concept of egocentric speech derives from the failure of his critics to make the key distinction between the perspective of the child and that of the observer. Piaget argues that while he would agree with his critics that early speech is socially interdependent from the viewpoint of the child, it is nevertheless egocentric, in that these "initial social interdependencies before seven actually attest to a minimum of socialization, because they are insufficiently structured....It is important, therefore, to concentrate on a relational rather than a conceptual analysis and to distinguish the points of view of the subjects and of the observer in such a way that certain connections may be interpreted both as social interdependencies and as inadequate instruments of socialization" (Piaget and Inhelder, 1969, p. 117).

Given the history of confusion in this field of speech function, the stem social was included in the name of each of the speech clusters identified in the present study to make clear that the present perspective is from the viewpoint of the child's need to engage in social speech.[14]

In summary, the developmental results suggest that the period before age 3 is dominated by what may be called Primary Socially Interdependent Speech, with adult-addressed speech at its highest level. After 3, these early speech forms generally persist at about the same levels until age 5, but added to them are more mature speech forms which seem to reflect the increasing differentiation of self, and of self from other. At this time, ego-enhancing statements show an abrupt increase, and a number of peer-addressed speech patterns which have been

called Secondary Sociable Speech begin a continuing rise with age. Finally, Tertiary Socialized Speech forms, those adapted to the needs of the listener, seem to emerge with high frequency at age 4 or 5. The findings are consistent with both Piagetian and psychoanalytic theorizing on the emergence of a significant degree of ego-differentiation at around age 3 (Piaget and Inhelder, 1969; Erikson, 1963).

IV. SOCIOLINGUISTIC STUDY

Language and poverty research (see Williams, 1970) has been of two kinds: (a) rigorous quantitative studies, which focus narrowly on the adequacy of the disadvantaged child's verbal productions, his linguistic or communication competence and proficiency, and (b) exploratory qualitative studies, which broadly examine social class and ethnic differences in naturalistic everyday speech usage as a source of hypotheses concerning the factors which might influence school performance of disadvantaged children.

The quantitative studies use verbal productivity, mean length of utterance, or deviations from Standard English as criteria of deficit. In these studies it is assumed that the disadvantaged child has been assessed under some ideal condition so that situational factors do not affect his adequacy, and that the obtained verbal deficits have implications for performance on school tasks. These assumptions of the deficit approach have come under severe attack by linguists (Labov, 1970; Hymes, 1971), Piagetians (Furth, 1970), and psychologists (Cazden, 1970) who have pointed out that verbal adequacy varies with situational context, and that these quantitative indicators of verbal adequacy have little to do with the school problems that poor children present.

The exploratory qualitative approach, while it is concerned with the school problem of poor children, is not at all concerned with quantitative deficits in verbal productions. Indeed, it represents an entirely different approach to the language and poverty problem, which has been variously designated as ethnolinguistic, sociolinguistic (Hymes, 1971), or ecological (Horner and Gussow, 1972). Instead of focusing on the adequacy of utterances, qualitative studies of everyday speech have been concerned with the broadest possible range of noncognitive

and nonlinguistic factors in the human communication experience as they impinge on linguistic output. For example, Bernstein (1970) and Hess (1969) have focused attention on maternal control strategies in interpersonal interaction, and how they affect the linguistic output of children. Labov, Cohen, Robins and Lewis (1968, Vol. II) have focused attention on the distrust of the child. These sociolinguistic studies, while stimulating and provocative, have typically been descriptive or anecdotal. Nor have they concerned themselves with the early years of development.

The present study was designed to provide sociolinguistic data on the years from 2 to 5 and to provide large enough samples to subject the data to statistical analysis. The study is formulated within an ecological-ethnolinguistic framework. Qualitative differences in everyday speech usage are examined as they naturally occur in existing preschool centers for advantaged and disadvantaged, black and white children. These qualitative differences from ages 2 to 5 are studied as a source of hypotheses for an understanding of later school problems.

Subjects

Ss consisted of the four cross-sectional sociolinguistic samples described in Table 1--advantaged white, advantaged black disadvantaged black higher IQ, disadvantaged black lower IQ. The longitudinal sample was excluded because of the special circumstances under which the data were collected.

Procedures

The data to be analyzed are contained in Tables 3 to 6, each table showing the age level means for one of the four sociolinguistic groups. As in the Developmental Study only those 25 scores with adequate frequency (see frequency criteria above) will be analyzed. The Developmental Study has examined these scores from the viewpoint of age changes from 2 to 5 years. The present study will re-examine the same data from a sociolinguistic point of view.

Specifically, the Sociolinguistic Study focuses on those preschool speech differences which might reasonably be expected to have some implications for later school performance. To meet this objective, the following three criteria were established:

1. Consistency for advantaged groups. Both advantaged groups, black and white, must share in common the difference with the disadvantaged samples. This requirement was necessitated by the findings on total productivity of adult-directed and child-directed speech (see Figure 1). It will be recalled that relative to both disadvantaged groups, the advantaged white sample produced significantly more adult-addressed speech, while the advantaged black sample produced significantly more child-directed speech. Since both of these advantaged groups are expected to do well in school, given their high social standing and their above average IQs, these findings indicate that it is possible for advantaged preschoolers to differ in speech characteristics from disadvantaged groups in ways that are not necessarily associated with later school success.[15] Since the present study, like most language and poverty research (Williams, 1970), is concerned with speech differences which are associated with later school success, only those speech characteristics which both advantaged groups share in common, and which significantly distinguish each advantaged group from the disadvantaged groups, will concern us here.

2. Consistency for disadvantaged groups. The lower IQ disadvantaged group, while it may differ from both advantaged groups to a greater or lesser degree as compared with the same difference for the higher IQ disadvantaged group, may not differ from both advantaged groups in a direction opposite to that of the higher IQ disadvantaged group. This requirement was necessitated by the fact that while the higher IQ disadvantaged group has the methodological virtue of being crudely matched in IQ with both advantaged groups, decades of research on the Binet

indicate that it is the lower IQ disadvantaged group which is by far the most vulnerable from the viewpoint of later school functioning. Therefore, a decrement or increment for the higher IQ disadvantaged group relative to the advantaged groups, that is not also shared by the lower IQ disadvantaged group, would be extraordinarily difficult to interpret from the viewpoint of later school functioning.

3. Consistency across the age range under study. The difference between advantaged and disadvantaged groups must be consistent across the age range under study. The age consistency criterion was necessitated by the fact that given the large number of scores with adequate frequency to be studied, 25 in all, and the four age-level means for each score, a certain number of significant differences between advantaged and disadvantaged means would be expected on the basis of chance alone. The three consistency criteria adopted, consistency for advantaged groups, for disadvantaged groups, and the age range, served to reduce the possibility of chance significant differences.

The requirement of age consistency also served to eliminate scores showing what might be called developmentally meaningless interactions between age level and sociolinguistic group, for example, a significant difference between advantaged and disadvantaged groups at age levels 3½ and 5½, but not at 2½ and 4½. There seemed to be no point in accumulating lists of such puzzling findings, since developmental theory could provide no parsimonious way of interpreting them at this time. Concerning what might be called <u>developmentally meaningful</u> interactions between age and sociolinguistic group, there seemed to be three possibilities: (a) that advantaged and disadvantaged groups become more discrepant with age; (b) that they become less discrepant; or (c) that the direction of the discrepancy reverses itself in the middle of the age range under study, between ages 3½ and 4½. The data of Tables 3 to 6 were graphed and inspected to

identify these three possibilities. No examples of the reversal effect were found. Examples of increasing and decreasing discrepancy were found, but the preliminary statistical test adopted for assessing the significance of age consistency (see below) excluded none of these scores from the final statistical analysis.

Finally, it may be noted that it was possible to modify the age consistency criterion for late-maturing scores (those showing significant age increments as listed in Table 7) if they failed to demonstrate age consistency in the total age range from 2½ to 5½. Since these scores tended to show very low frequencies at age 2½, age consistency was required only for the age range from 3½ to 5½.

The statistical procedures for evaluating whether these three consistency criteria were met consisted of two steps. For the first step, preliminary Sign tests were applied to identify those scores which met the three consistency criteria on the basis of the direction of the mean differences, i.e., a consistent increment (or decrement) for both advantaged groups as compared to both disadvantaged groups. The Sign test showed a significant degree of consistency in the direction of the mean difference ($p < .02$, two-tailed test) if both advantaged groups showed higher (or lower) means than both disadvantaged groups in at least 13 of the 16 mean age comparisons of Tables 3 to 6. For the late-maturing scores, a consistent increment (or decrement) could be demonstrated ($p < .02$, two-tailed test) if both advantaged groups showed higher (or lower) means than both disadvantaged groups in at least 10 of the 12 mean age comparisons of Tables 3 to 6, covering the age range from 3½ to 5½.

For the final step of the statistical procedure, 3-way analyses of variance, sociolinguistic group by age by sex, with replication for sex, were applied to those scores showing a significant degree of consistency on the Sign test. The preliminary Sign test was applied because analysis of variance takes into account

both the size and the direction of mean differences, so that large differences in size can compensate for differences in the direction of the mean difference, if the latter differences are small. The Sign test additional requirement of a significant degree of consistency in the direction of the mean difference was yet another precautionary measure for preventing chance significant differences. The other precautionary measures are inherent in the three consistency criteria defined above.

Results

The following seven scores show a significant increment for both advantaged groups compared to both disadvantaged groups on the Sign test: the Subcategory scores, Asserts Desire, Me Too, Collaborative Disagree, Collaborative Dramatic Play, Reporting about Self; and the Appended scores, Asserts Desire to Adult and Modulation. Except for Collaborative Disagree, all scores, including the late-maturing Collaborative Dramatic Play and Modulation, show increments for the advantaged groups for at least 13 of the 16 mean age level comparisons covering the total age range from 2½ to 5½. For the late-maturing Collaborative Disagree, 10 of the 12 mean age level comparisons in the age range 3½ to 5½ show the increment for both advantaged groups. The Sign test revealed no score with a significant increment for both disadvantaged groups as compared to both advantaged groups.

Table 8 summarizes the results of the analyses of variance for each of these

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Insert Table 8 about here

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seven scores. The four age level means for the four sociolinguistic groups for each of these seven scores can be found in Tables 3 to 6. Figures 3 to 9 graphically plot these age level means, with each figure showing the results for each of the seven scores as listed above, respectively.

Insert Figures 3-9 about here

For each of the seven scores, Table 8 lists the F ratio and shows the probability values for the main variables, sociolinguistic group, age, and sex, and for the interaction terms. It can be seen that all scores show a significant effect of sociolinguistic group, which is not surprising considering the rigorous demands of the preliminary Sign test. Three scores show significant age effects, an age decrement for Asserts Desire to Adult (see Figure 8), and an age increment for Collaborative Disagree (see Figure 5) and Modulation (see Figure 9). Only one score, Asserts Desire to Adult, shows a significant sex effect in favor of girls. Except for a significant interaction between age and sociolinguistic group for the scores Me Too and Collaborative Disagree, Table 8 shows no other significant interactions.

The key question for the present study is whether any of these scores, all showing significant sociolinguistic main effects, fulfill the three required consistency criteria: (a) that both black and white advantaged Ss share in common a significant difference from the disadvantaged groups; (b) that, relative to the advantaged groups, the lower IQ disadvantaged group shows a difference in the same direction as the higher IQ disadvantaged group; and (c) that the differences between advantaged and disadvantaged groups are consistent across the age range under study, unless a developmentally meaningful interaction between age and sociolinguistic group can be demonstrated.

Taking the age consistency criterion first, it has been noted (see Table 8) that the only scores with a significant interaction between age and sociolinguistic group were Me Too (see Figure 4) and Collaborative Disagree (see Figure 5). Inspection of Figures 4 and 5 indicate that these significant interactions are developmentally meaningful in that both scores show a decreasing discrepancy between advantaged and disadvantaged groups with age. Scheffé tests support this impression in that neither of these scores show significant sociolinguistic

differences at age 5½, while Me Too shows significant sociolinguistic differences for ages 2½ to 4½, and the late-maturing Collaborative Disagree shows significant differences for ages 3½ to 4½ (see report of Scheffé tests below). Altogether, the criterion of consistency across the age range, or a developmentally meaningful interaction with age, is fulfilled by all seven scores.

Regarding the criterion that the lower IQ disadvantaged group, relative to the advantaged group, shows a difference in the same direction as the higher IQ disadvantaged group, the very same requirement was demanded by the preliminary Sign test, so that all seven scores have already met this criterion.

Finally, to evaluate whether the first criterion was met, that each of the advantaged groups, both black and white, shares in common a significant difference in relation to the disadvantaged groups, it was necessary to carry out Scheffé tests, comparing the means of each of the four sociolinguistic groups, for each of the seven measures. Table 9 lists these means as follows: for those scores with no significant interaction between age and sociolinguistic group, the means for all four age levels are averaged for each of the sociolinguistic groups; for Me Too and Collaborative Disagree, with significant interactions between age and sociolinguistic group, the age level means are averaged for that portion of the age range where the Scheffé tests show significant sociolinguistic differences, 2½ to 4½ for the score Me Too, and 3½ to 4½ for the score Collaborative Disagree.

Insert Table 9 about here

Table 9 also indicates the probability values for the Scheffé tests as follows: when the mean of the advantaged group, black or white, shows a significant increment relative to the means of both disadvantaged groups, the notations H and L are shown above the advantaged mean; when the advantaged group shows a

significant increment only for the lower IQ disadvantaged group, the notation L is shown. There were no instances where the advantaged mean showed a significant increment for the higher IQ disadvantaged mean without also showing one for the lower IQ disadvantaged mean. There were also no instances of a significant difference between the means of the two disadvantaged groups, higher and lower IQ. There was only one instance of a significant difference in the means of the advantaged groups, black and white; the score Collaborative Disagree at ages 3½ to 4½ showed a significant increment for the black advantaged group.

As can be seen in Table 9, the only scores with both advantaged groups each showing a significant increment relative to the disadvantaged groups are Modulation, with significant increments for both the disadvantaged groups, and Asserts Desire to Adult, with significant increments for the lower IQ disadvantaged group only. Otherwise, the advantaged white group showed significant increments for Asserts Desire and Reporting about Self; and the advantaged black group showed significant increments for Me Too, Collaborative Disagree and Collaborative Dramatic Play. It is the two Appended scores, Modulation and Asserts Desire to Adult, which meet all three consistency criteria.

Discussion

The fact that only two preschool speech scores, Modulation and Asserts Desire to Adult, were identified, which may have implications for later school performance, is directly related to the requirement that both black and white advantaged Ss share in common a significant difference with the disadvantaged groups. Had only the advantaged black Ss been compared to the disadvantaged black Ss, a number of child-directed Secondary Sociable Speech patterns would have shown a significant increment for the advantaged group. The finding of a significant increment for the advantaged blacks on the Child-Listener score has already been noted (see Figure 1). Table 9 also shows significant increments

for the black advantaged Ss for two scores with the Listener Designation to Child, namely, Collaborative Dramatic Play and Collaborative Disagree. However, the fact that the advantaged white, who are likely to do as well in school as advantaged blacks, do not show comparable significant increments for these child-directed scores (Child Listener /see Figure 1/, Collaborative Dramatic Play, and Collaborative Disagree /see Table 9/) makes the increment for the advantaged blacks ambiguous from the viewpoint of the implications for school performance. Indeed, consistent with the white Ss' higher productivity of adult-addressed speech (see Figure 1), Table 9 shows that the increments specific to the advantaged whites occurred on the early-maturing Primary Speech pattern (i.e., Asserts Desire and Reporting about Self), while increments specific to the advantaged blacks tended to occur on the Secondary Speech pattern.

In any case, the two significant increments which both advantaged groups share in common are particularly interesting in that they are consistent with previous research and theory in this field. It bears repeating before proceeding with the discussion that the sociolinguistic approach, to date, has been highly intuitive and highly speculative. Informal observation in naturalistic situations form the basis for speculation on possible relationships between the intricate process of everyday human communication and school performance (Bernstein, 1962, 1965, 1970; Labov, et al., 1968; Labov, 1970). Given the preliminary exploratory nature of research in this field, the following discussion must be viewed as a tentative attempt to generate hypotheses for future research.

Regarding the Modulation score, the findings are consistent with Hess' research, which is formulated in the framework of Bernstein's (1962, 1965) sociolinguistic theories concerning interpersonal control strategies (Hess, 1969; and Shipman, 1965). Hess finds that lower-class black mothers are more apt to use imperative-normative control strategies with their children, while middle-class

blacks use more cognitive-rational and personal-subjective strategies. The former involve orders, accompanied by appeals to existing norms, e.g., "Do it because I told you" or "Do it because that's the way we do it." The cognitive-rational strategy involves appeals to reason, e.g., "Do it because it may fall"; and the personal-subjective strategory involves appeals to reasons which are concerned with personal feelings, e.g., "Do it so you don't hurt her feelings." It is obvious that the latter two middle-class strategies require much greater use of what we call Modulation--explanation, justification, rationalization, attempts at verbal persuasion, etc. The present data indicate that these social class differences in communication are apparent as early as the preschool years.

Indeed, these verbal modulations may be the earliest manifestations of what Bernstein has called the elaborated linguistic code, which he characterizes as context-free, universalistic, and abstract in contrast to his restricted linguistic code which is context-bound, particularistic, and concrete. The middle-class control strategies which Hess describes are manifestations of the elaborated code; the lower class of the restricted code. The modulations of our young preschoolers generally appeal to universalistic principles which go far beyond the immediate context. For example, a child may attempt to persuade the other with the appeal, "You promised," or he may explain that the reason he is not willing to share his toy is because it is "brand new."

From the point of view of later school functioning, it seems evident that school life is dominated by the kind of rational talking-it-over processes involved in verbal modulations, explanations, justifications, etc. To the degree that the preschooler comes to school well versed in the why-and-because processes that seem to be involved in these modulations, he would seem better prepared to deal with the why and becauses involved in school teaching and learning. In a similar vein, Bernstein (1970) argues that since school life is dominated by the

elaborated code, lower-class children are limited by their inexperience with the code.

The present data, while consistent with Bernstein's sociolinguistic theory, also suggest that it may be important to add a developmental perspective. Bernstein (1962, 1965) has specifically rejected a developmental perspective. He argues that his elaborated code is not a more advanced form of communication, pointing out that members of both social classes adopt a restricted code when communicating in intimate or ritualized situations where the elaborated code is not required. The present developmental-sociolinguistic data indicate that while there may be situations which do not require elaborated modulations, it is possible to fail to develop such techniques sufficiently, so that they are less available when one might choose to use them as, for example, in school situations.

Given the non-egalitarian implications of a developmental approach, it should be pointed out that the opposite pattern of overdevelopment of modulations, or overqualifications and overtemporizing, as Labov (1970) describes it, has been noted to be a serious problem in middle-class speech (Labov, 1970). The clinical psychologist readily recognizes this pattern (so well exemplified in the speech of Labov's case of Mr. C. /Labov, et al., 1968/) as a manifestation of the defense of overintellectualization, characteristic of obsessional personalities (Rapaport, Gill, and Schafer, 1946). However, this type of problem is not usually associated with reading problems. Indeed, most college professors (including the author) could probably qualify as overintellectualizers, overmodulators or overqualifiers, but they usually have no trouble learning to read, which presumably is the implicit core problem in most language and poverty research.

Turning to a discussion of the score Asserts Desire to Adult, which shows an increment for both of the advantaged groups only for the lower IQ disadvantaged group, this finding is highly consistent with the results of White's recent

studies of competence in preschool children (White, in press). White defines competence in terms of IQ, as well as other factors. His more competent preschoolers, compared to the less competent, show more instrumental dependence on adults in their overall social behavior. The present findings on instrumental dependence in social speech are consistent with White's findings on instrumental dependence in overall social behavior, in that the score Asserts Desire to Adult is specifically associated with lower IQ. The more competent higher IQ disadvantaged group does not show a significant decrement for this score.

Regarding implications of this speech finding for later school functioning, low levels of Asserts Desire to Adult would seem to reflect an insufficient reliance on, or trust in, adults which might easily jeopardize the sensitive relationship between student and teacher in the early years of school when reading and writing are acquired. In this connection, it is important to consider the significant sex difference which was found with regard to the score Asserts Desire to Adult. This sex difference, in favor of girls, directly parallels the sex differences in reading ability in favor of girls, which is consistently reported in the literature. That is, the data on sex differences corroborate the data on sociolinguistic differences in suggesting an association between instrumental dependence on adults and performance on school tasks.

Finally, it should be noted that the present formulation concerning a trusting relationship with the adult caretaker is consistent with the sociolinguistic formulations of Labov, et al. (1968), at the same time suggesting the addition of a developmental perspective which is missing from Labov's sociolinguistic theory. Labov has studied communication among peers in black ghetto adolescent street gangs and has emphasized how these children, so talkative on the streets, clam up in distrust and suspicion in the presence of the largely white middle-class power elite at school--the teacher and the tester. The present data

indicate that the black disadvantaged child's distrust of adults may long antedate his arrival at school. Even as young as age 2, even in the permissive environment of free play at his community preschool center, staffed mainly by members of his own ethnic group, he is less apt to rely on adults to gratify his desires than is the advantaged child.

Given the non-egalitarian nature of a developmental approach, it is important to note that psychologists have observed the opposite developmental pattern of excessive dependence on adults, particularly in association with first-born status among middle-class children, and that difficulties in living have been identified in association with this pattern (Kagan, 1969). Nevertheless, it needs to be pointed out that, unlike the lower-class pattern, this opposite pattern of excessive adult dependence in middle-class first borns is typically associated with above average academic performance, high IQ, and later intellectual achievement (Kagan, 1969).

Heretofore, we have been discussing the sociolinguistic findings on Asserts Desire to Adult and those for Modulation separately. The difference in the speech findings between the higher and lower IQ disadvantaged groups suggest a plausible avenue of approach for integrating the data on the two scores. Scheffé tests indicate that the higher IQ group shows a significant decrement only for the later maturing Modulation, while the lower IQ group shows a significant decrement for both the early appearing Asserts Desire to Adult and the late appearing Modulation. It would appear that when the impact of poverty is severe enough to affect preschool IQ, that both the early and later phases of interpersonal communication have been affected, while, when the impact of poverty is less severe so that preschool IQ is minimally affected, then only the later stage, involving the development of modulations, has been affected.

This two-phase developmental sequence could provide the basis for a develop-

mental-sociolinguistic theory which integrates both the sociolinguistic theories of Labov concerning trust in adult teachers, and the theories of Bernstein concerning elaborated speech forms. It would also serve to integrate sociolinguistic theory with the developmental theories of Erikson (1963) and Piaget (1926). Erikson's psychoanalytic theory emphasizes the necessity of an adequate development of basic trust as the foundation for the later development of all socialized forms of behavior, all of which require the modulation of one's own behavior for the sake of the other. Piaget, addressing himself to speech development in particular, describes a developmental progression toward more socialized forms of speech which take into consideration the needs of the listener. Could not this developmental progression be impeded by undermining the child's innocent faith that the adult world will meet his needs when asked to do so?

It has been the explicit aim of the Sociolinguistic Study, like most of current sociolinguistic research, to generate hypotheses concerning the relationship between the complex process of human communication, with its plethora of noncognitive and nonlinguistic, social and motivational factors, and the performance of school children on cognitive tasks. The sociolinguistic approach rejects the assumption of a generalized linguistic deficit, independent of context; linguistic output is assumed to depend on context. For this reason, the data on the present sociolinguistic samples could have been different had the samples been observed in different contexts, for example, if the disadvantaged blacks had been bussed to integrated preschools rather than attending their own community group care centers. The context of the present study, namely, existing community group care centers in a large urban area, was chosen because of the obvious relevance for deriving educational implications for existing urban programs.

V. SUMMARY AND IMPLICATIONS

Speech development is rarely studied from a functional-motivational point of view, despite the fact that both mothers at home (White, 1971), and teachers who adopt a whole-child approach at preschool (Biber, et al., 1971) rely heavily on the child's self-motivated speech to set in motion his everyday verbal transactions. To date, research in language development has focused on syntax and semantics (Bloom, in press), while studies of speech development have focused on the adequacy of interpersonal communication (Piaget, 1926; Flavell, 1968) or on intrapersonal speech (Vygotsky, 1962; Luria, 1961; Kendler, 1963). Little attention has been paid to the nonlinguistic and noncognitive, motivational, personal and social aspects of interpersonal speech. Indeed, it is the sociolinguists or ethnolinguists (Bernstein, 1970; Labov, 1970; Hymes, 1971), rather than the psychologists, who have been urging us to examine the complex process of human communication in its intricate social everyday context. Recent sociolinguistic research on older children and adults suggests that patterns of everyday interpersonal speech usage may have important implications for the poverty school problem. Yet, we have little data on how these patterns develop in early childhood or on early sociolinguistic differences. The present Methodological, Developmental, and Sociolinguistic Studies were designed to provide this data for ages 2 through 5.

1. Methodological Study. The aim of the Methodological Study was to develop a scoring scheme for the functions of spontaneous interpersonal preschool speech from the viewpoint of the child's need to talk. The scoring scheme, called the FIS-P, was developed inductively on the basis of 6,000 statements from 150 preschoolers, advantaged and disadvantaged, black and white. The Abbreviated Form

of the FIS-P, used in the present project, yields Subcategory scores in nine major scoring categories as follows: There are categories for personal motives, Expressive, Desire Implementing, Possession Rights Implementing, and Ego-Enhancing; categories for social motives, Self-Referring-Including, Joining, and Collaborative; categories for other motives, Learning Implementing and Reporting. There are also Appended scores, Adult Listener for utterances addressed to adults; Child Listener for utterances addressed to other children; Asserts Desire to Adult for desire assertions addressed to adults; and Modulation covering explanations, justifications, rationalizations, attempts at verbal persuasion, etc., often beginning with the word "because." There are also Listener Designations for FIS-P scores addressed mainly or exclusively to adult or child listeners. Altogether 25 scores of adequate frequency were subject to study.

The scoring scheme is applied to each spontaneous utterance, intended for interpersonal communication, as recorded in 12 3-minute language samples per S. For each FIS-P score the number of the 12 observation intervals in which the score occurs is measured. This interval measure was adopted to deal with the problems of variation in verbal productivity, and continuations or repetitions in conversation. Scorer agreement was found to be 73%, comparable to other studies of motivational variables. Consistency of scores per S yielded a reliability of .67 on a small pilot sample. To examine the intercorrelations among FIS-P scores, factor analysis on a sample of 57 4-year-olds was carried out. The following five factors were found: Factor 1, Adult Oriented Talk (Dependency and Identification); Factor 2, Aggressive Talk (Negative Self-Assertion); Factor 3, Ego Thrust Talk (Positive Self-Assertion); Factor 4, Peer Interaction Talk; and Factor 5, Linking to Others with Words (Interdependence).

2. Developmental Study. In the Developmental Study, changes in FIS-P scores from ages 2 to 5 were examined. Developmental data were collected on five

samples, a small longitudinal sample of four advantaged white Ss observed at ages 2-0, 2½, 3-0, 3½, and 4½, and a large cross-sectional sample of 170 Ss, consisting of four sociolinguistic groups, advantaged white, advantaged black, disadvantaged black, all groups of above average mean Binet IQ, plus a disadvantaged black group of below average mean Binet IQ. For each of the four sociolinguistic samples there were subgroups at ages 2½, 3½, 4½, and 5½, with an equal number of boys and girls in each subgroup. Data were collected in 20 urban preschool settings, with 39 different groups.

The four cross-sectional samples showed differences in verbal productivity as follows: Analysis of variance (sociolinguistic group by age by sex, with replication for sex) indicated that the productivity of adult- and child-addressed statements was disparate both with regard to age and sociolinguistic group. The amount of speech addressed to adults was found to decrease significantly from age 2 to 5, and the advantaged white group produced significantly more of these statements than either of the disadvantaged groups. On the other hand, the amount of child-directed speech showed a significant age increment from 2 to 5 years, and the advantaged black group produced significantly more of these statements than either of the disadvantaged groups. These quantitative differences in the overall productivity of adult- and child-directed speech were taken into account in interpreting the qualitative differences in speech patterns (FIS-P scores) found in the Developmental and Sociolinguistic Studies.

Developmental hypotheses concerning the FIS-P scores were generated by the theoretical considerations of Piaget (1926; and Inhelder, 1969) concerning the underlying structural development of self- and self-other (speaker-listener) differentiation. Considerations concerning self-differentiation suggested a developmental continuum of speech function for the personal motive Subcategory scores as follows: Category I Expressive statements seemed most immature since they appear

to require no self-differentiation; Category II Desire assertions also seemed immature since they appear to require only the differentiation of momentary need states. Category III Possession Rights statements seemed more mature in that they appear to require a self-schema which transcends time, so that objects can be viewed as belonging to the self beyond the present moment. Category IV Ego-Enhancing statements seemed most mature in that they appear to require the development of a self-schema with well differentiated, lasting attributes, which S can boast about.

Considerations concerning self-other differentiation suggested a developmental continuum of speech function for the social motive Subcategory score as follows: The Self-Referring Me Too statements of Category V seemed to reflect a minimum of differentiation, with S imitatively referring to himself any statement the other has said, as if the distinction between the self and the other is blurred. The Joining statements of Category VI seemed to reflect an increasing self-other differentiation in that the child actively seeks out a union with another, rather than merely reacting imitatively to another. The Collaborative statements of Category VII seemed to reflect the highest degree of self-other differentiation in that evidence of role differentiation is required, with the self and the listener taking complementary positions in an action project or purely verbal discussion.

Finally, Categories VII, Learning Implementing, and IX, Reporting, were placed at the end of the list of categories because they seemed to stand outside the developmental sequence covered by Categories I through VII. Learning implementing and reporting statements seemed to occur throughout the life cycle, at all levels of ego-differentiation. However, a constant reporting of one's own experience seemed likely to be an especially prominent feature of the primary adualistic state, where the line is blurred between thinking to oneself and

sharing one's thought with others.

The developmental findings, with minor exceptions, support these developmental hypotheses. The most mature of the personal motive statements, Ego-Enhancing, shows a significant increment with age, a doubling in frequency at around age 3, leveling off thereafter, from 3 to 5. The most mature of the social motive statements, Collaborative, also shows a significant age increment coming into prominence at around age 3, and showing a continuing increase thereafter. The immature personal motive statements Expressive and Desire Implementing, the immature social motive Me Too statements, and the immature Learning Implementing and Reporting statements show almost no evidence of increase with age from 2 to 5. They appear early and tend to maintain the same levels of productivity from 2 to 5, with some samples showing decreases on some scores.

The developmental findings were also examined inductively as they cluster together at the age levels from 2 to 5, and in relation to the factorial clusters as well as the overall age decrement for adult-addressed statements and age increment for child-addressed statements. The results indicate that age 3 is pivotal in the development of preschool patterns of everyday speech usage. Before 3, speech consists mainly of desire implementing; "me too" self-referring; learning implementing (word naming); and reporting about the self and things, with adult-addressed speech at its highest levels. Structurally, from the point of view of the underlying structure of the self, these early speech patterns seem to reflect the primary adualistic state which Piaget calls egocentric. Functionally, from the point of view of the child's need to talk, this early speech repertoire seems optimally suited for fostering the primary attachment between child and caretaker, and for insuring maximum gratification during this primary mutually interdependent attachment. We have called this repertoire Primary Socially Interdependent Speech. The factor analysis provides evidence of factorial validity for this

cluster in that *Factor 5, Linking to Others* with Words (Interdependence), is almost identical to the cluster we have called Primary Speech.

After age 3, Primary Speech tends to persist at the same frequency until age 5, but added to it are later maturing speech functions which seem to reflect the increasing differentiation of self from other. After 3, ego-enhancing boasting statements show an abrupt increase, and a group of child-addressed speech patterns, consisting mainly of joining and collaborative statements, begin a continuing rise with age, as does the overall productivity of child-addressed statements. We have called this peer-addressed cluster Secondary Sociable Speech. Again the factor analysis provides evidence of factorial validity for this cluster, in that Factor 4, Peer Interaction Talk, is almost identical to the cluster we have called Secondary Speech.

Finally, a pair of speech patterns which seem to be adapted to the needs of the listener, called Tertiary Socialized Speech, seems to emerge at ages 4 or 5. These patterns include modulations (explanations, justifications, etc.) and disagreeing in a collaborative discourse. Here the factor analysis does not provide validation of this pairing, probably because the factorial study was carried out at the 4 year level, when both of these patterns are just beginning to emerge.

It can be seen that the Developmental Study reveals developmental continua of speech function which seem to reflect the underlying development of self- and self-other differentiation. In this respect the findings are similar to those of the speech studies of Piaget (1926). However, there are important differences. Piaget's categories of speech function were constructed from the perspective of the observer, whereas the FIS-P classifies speech function from the viewpoint of the child, i.e., his motives to talk. In addition, Piaget focuses on the developmental shift at age 7, while the present study focuses on developments from age 2 to 5. Within the latter age range, both Piaget (and Inhelder, 1969) and

psychoanalytic theory (Erikson, 1963) propose that age 3 is pivotal in the emergence of a significant degree of ego-differentiation. The present findings support this position, showing a distinct shift in everyday speech usage at around age 3.

3. Sociolinguistic Study. For the Sociolinguistic Study, the data of the four cross-sectional samples (advantaged white, advantaged black, disadvantaged black higher IQ and disadvantaged black lower IQ) were examined in an effort to identify preschool speech patterns that might have implications for later school functioning. With this aim in mind, and also to avoid obtaining sociolinguistic differences on the basis of chance alone, the following three criteria needed to be met before considering an FIS-P speech score of possible sociolinguistic significance: (a) Consistency for both advantaged groups. Given the finding that advantaged black Ss show an increment in child-directed speech relative to the disadvantaged Ss, while advantaged whites show an increment in adult-directed speech, and given the expectation that both of these advantaged preschool groups will perform well in school, it was required that both advantaged groups share in common a significant difference from the disadvantaged groups. (b) Consistency for both disadvantaged groups. Given the fact that the lower IQ disadvantaged group is more vulnerable to school problems than the higher IQ group, it was required that the former share in common with the latter the direction (increment or decrement) of the mean difference from the advantaged groups. (c) Consistency across age levels. Given the large number of means to be compared, with 25 scores of adequate frequency and four age-level means for each score, it was required that sociolinguistic differences show consistency across the age range under study, unless a meaningful interaction with age could be demonstrated (i.e., advantaged and disadvantaged groups become either more or less discrepant with age).

The age consistency criterion was intended to markedly reduce the possibility

of obtaining sociolinguistic differences purely on the basis of chance. The other two consistency criteria also served to avert this possibility. Finally, as a further effort in this direction, consistency across the age range in the direction of the difference (increment or decrement) between advantaged and disadvantaged groups was required, so that large differences between social classes at some age levels would not be allowed to compensate for reversals in the direction of the social-class differences. This final requirement was implemented by applying a Sign test to the 16 mean age-level comparisons for each FIS-P score. Only if the score showed an increment (or decrement) for the advantaged Ss in 13 of the 16 comparisons, significant at the .02 level on a two-tailed test, was the score subject to further analysis.

The following seven speech scores showed significant increments for the advantaged groups relative to the disadvantaged groups on the Sign test: the Subcategory scores Asserts Desire, Me Too, Collaborative Disagree, Collaborative Dramatic Play, Reporting about Self; and the Appended scores Asserts Desire to Adult and Modulation. There were no scores showing a significant increment for the disadvantaged groups.

The final step in the statistical treatment consisted of a 3-way analysis of variance (sociolinguistic group by age by sex, with replication for sex) for the seven scores which showed a significant difference on the Sign test. The analysis of variance, plus Scheffé tests, served to identify those scores which fulfilled the three consistency criteria, consistency for both advantaged groups, for both disadvantaged groups, and across the age range under study. The tests showed that the scores which fulfilled all three criteria were Modulation, with significant increments for each of the advantaged groups (black and white) relative to each of the disadvantaged black groups (higher and lower IQ), and Asserts Desire to Adult, with significant increments for each of the advantaged groups

relative to the lower IQ disadvantaged group.

The finding that only two scores showed significant sociolinguistic differences was directly related to the requirement that both advantaged groups share in common the difference from the disadvantaged groups. Several scores showed an increment only for the advantaged black group, namely, Me Too, Collaborative Disagree, and Collaborative Dramatic Play, while other scores showed an increment only for the advantaged white group, Asserts Desire and Reporting about Self. These discrepancies are no doubt related to the advantaged black increment for child-addressed speech and the advantaged white increment for adult-directed speech. The speech patterns showing an increment for the advantaged blacks are mainly components of the cluster Secondary Sociable Speech, associated with an increasing predominance of child-addressed speech. On the other hand, scores showing an increment for the advantaged whites are components of the cluster Primary Speech, associated with the highest levels of adult-directed speech.

In any case, these two significant sociolinguistic findings, for Modulation and Asserts Desire to Adult, are interesting because they are consistent with the existing literature in the field. The finding of significantly more Modulation speech for the advantaged Ss is consistent with Hess' (1969) research formulated in the framework of Bernstein's (1962, 1965) sociolinguistic theories. Hess finds that lower-class black mothers are more apt to use imperative-normative control strategies with their children, while middle-class blacks use more cognitive-rational and personal-subjective control strategies. The latter two strategies relative to the former would seem to require much greater use of Modulation--explanation, justification, etc. The present data suggest that these social class differences in the use of verbal modulations are evident as early as the preschool years.

This preschool data on Modulation suggest that a developmental perspective

be added to Bernstein's (1962, 1965, 1970) sociolinguistic formulations. As early as age 4 or 5, when these socialized speech forms begin to emerge, they appear to be more highly developed in advantaged Ss relative to disadvantaged.

Turning to the results for Asserts Desire to Adult, the finding that both advantaged groups show an increment relative to the lower IQ disadvantaged group, and no significant difference relative to the higher IQ disadvantaged group, is consistent with the results of White's recent studies of competence in young children (White, in press). White defines competence in terms of IQ as well as other factors. His less competent preschoolers, relative to the more competent, show less instrumental dependence on adults in their overall social behavior, just as the present lower IQ sample shows less instrumental dependence in their social speech, as manifested in their lower scores on Asserts Desire to Adult.

The findings on Asserts Desire to Adult are also consistent with the sociolinguistic formulations of Labov, et al. (1968). In view of the high verbal productivity of disadvantaged adolescents on the streets of the urban ghetto, Labov suggests that the disadvantaged black child's linguistic output is diminished in the school setting because of his distrust and suspicion of the largely white middle-class power elite at school--the teacher and the tester. The present preschool findings on Asserts Desire to Adult, while consistent with Labov's general formulation, strongly indicate the need for adding a developmental perspective. These early findings suggest that, for the disadvantaged black child of lower IQ, distrust of adults may long antedate his arrival at school. Throughout the age range from 2 to 5, he is less apt to ask adults for help in fulfilling his own desires, adults mainly from his own community at his preschool center.

It is tempting to speculate on the possible relationship between the sociolinguistic findings on Asserts Desire to Adult and those for Modulation. Such speculation is [illegible]ted by the view of Modulation as a socialized speech form,

taking into consideration the needs of the listener. In the light of the developmental theories of Erikson (1963), it seems likely that the development of any socialized behaviors that require postponement and modulation of one's own behavior for the sake of the other would depend on the prior development of a solid sense of basic trust in the primary adult caretaker. Could not the development of socialized forms (verbal or otherwise) be impeded by undermining the child's innocent faith that the adult world will meet his own needs when asked to do so? Is the child psychology of poverty the psychology of innocence too early lost?

The implications of the above findings will be discussed both with regard to research in language development and practice in compensatory preschool education.

1. Research in language development. Developmental psycholinguistics has evolved so rapidly during the 5 years since the present research was undertaken, that a historical approach seems necessary in discussing its implications. When the study began in 1967, pivot grammar dominated research in language development (Brown and Bellugi, 1964). While it seemed obvious that statements with totally disparate speech functions, for example, desire implementing for "more cookie" and possession rights implementing for "my book," were being classified together purely on the basis of their pivotal syntactic structure, there seemed no ready way of integrating the present data on speech function with the ongoing research on language structure. Bloom's (1970) ground-breaking studies on semantic-syntactic relationships in early two-word utterances provided a framework for deriving possible implications of the present findings. Bloom described three components in language development--linguistic experience, cognitive-perceptual development and nonlinguistic experience. The present study suggests some hypotheses concerning the nonlinguistic component, particularly experiences related to the early development of the self-schema.

More specifically, the delay in the development of attributive syntactic

forms reported by Bloom (1970) seems to parallel the delay in the appearance of ego-enhancing statements found in the present study. Since these ego-enhancing statements are rich in attributes of size, color, plurality, etc. (e.g., "Look at my big house"; "I'm four!"), it seems reasonable to assume that both the delay in the development of the attributive form and the delay in the emergence of ego-enhancing statements may relate to the delay in the development of a fully differentiated self-schema with attributes to boast about. That is, it appears that a delay in language structure seems to parallel a delay in speech function, and that both delays may be related to the underlying development of the self-schema. There may be other syntactic forms whose development depends on ego-differentiation, for example, the dative would seem to require considerable self-other differentiation. Further research seems indicated here.

Coming to the work in progress in developmental psycholinguistics, Bloom's current studies on the role of spontaneous imitation in language development (Bloom, Hood, and Lightbown, in preparation) are particularly interesting in the light of the present findings on the self-referring Me Too statements, a common pattern which persists at the same levels from ages 2 to 5. These statements include what is usually referred to as imitation, exact repetition, but they also cover imitations of or analogies for the whole self, for example, one child might say "I'm making whip cream," and the other then say "I'm making whip cream too"; or one child may say "My milk comes in bottles," and the other then analogize "Mine comes in containers." If imitation proves to play a significant role in language development as a means of assimilating linguistic experience in the Piagetian sense, as Bloom (in preparation) suggests, then the Me Too phenomenon would provide a broad vehicle for assimilating linguistic experience to the emerging self-schema. Me Too statements can be applied to a far broader range of linguistic experience than exact repetition.

Again we are hypothesizing that nonlinguistic developments with regard to the self-schema contribute to language development. It may even be, in the absence of any evidence of parental reward and punishment for correct grammatical usage, that shame and pride, or the self-esteem of the burgeoning ego, may play a significant role in the achievement of linguistic creativity.

2. Practice in compensatory preschool education. All three studies, Methodological, Developmental, and Sociolinguistic, were designed to help "make 'natural,' less didactic, group environments more effective," as Cazden (1972, p. 24) puts it. These natural or whole-child programs assume that children will talk "if there is something of importance to them to communicate...(and) if the child has initiated it" (Mattick, 1972, p. 6). The teacher's role is viewed as a responsive one. On this basis, the development of a method for cataloguing self-motivated everyday speech, plus the available frequency data from ages 2 to 5, can be a useful tool in teacher training. While experienced teachers may have an ear for the ways preschoolers talk spontaneously, teachers in training may not.

The Developmental Study has further implications for practice. It suggests a changing role for the responsive teacher, in conjunction with the developmental changes in the child's spontaneous ways of speaking from 2 to 5. Before age 3, during the phase of Primary Socially Interdependent Speech, the teacher's reciprocal role in this mutually interdependent period would seem to require that she provide the child with the optimal means for keeping her continually posted on his actions, feelings, desires, and observations. The situation seems to require that she actively help the child to put into words these actions, feelings, desires and observations (e.g., "Is it the brush you want?"), and that she passively leave herself continually open to hearing him broadcast messages concerning himself, so that she can better respond to his needs.

At around age 3, when the child's self-awareness and self-evaluation begins

to emerge, it would seem particularly important for the responsive teacher to be ready and able to share in the child's pride in his successes (e.g., "Good for you!"), and to protect him from blows to his self-esteem by providing appropriate justifications for his failures (e.g., "That was a hard one"). After age 3, as the child speaks less and less to the teacher and more and more to other children, with the increasing productivity of Secondary Sociable Speech, the quantity of responsive teacher speech will inevitably decline. Yet, qualitatively, responsive teacher communication may still play a very significant role. The emergence at age 4 or 5 of Tertiary Socialized Speech signals the need, and the ability, of the child to resolve conflicts and difficulties in interpersonal interactions by means of talking-it-over techniques, modulations, explanations, justifications, etc., or by verbal discussions involving disagreeing and verbal arguments. The responsive teacher, at this phase of development, can foster the development of these socialized speech patterns by encouraging the use of such talking-it-over techniques, as a way of resolving the myriad conflicts of daily school experience (e.g., "Let's see why Johnny feels this way"). Essentially, responsive teacher communication seems to require a developmental shift from nurturance to socialization from age 2 to 5.

The Sociolinguistic Study identified two everyday preschool speech patterns that may have special significance for the later school functioning of disadvantaged black children, Modulation and Asserts Desire to Adult. The finding that both advantaged groups (white and black) show higher Modulation scores than both disadvantaged black groups (higher and lower IQ) suggests that teacher encouragement of the talking-it-over techniques described above may be highly useful in preparing the disadvantaged child for school. School life seems to be dominated by the kind of rational talking-it-over processes that seem to be involved in verbal modulations, explanations, justifications, etc. To the degree that the

preschooler comes to school well practiced in the why-and-because processes that seem to be involved here, he would seem to be better prepared for the whys-and-becauses of school teaching and learning.

The findings for Asserts Desire to Adult, with both advantaged groups showing an increment only for the lower IQ disadvantaged black group, suggest that the preschool child who is least likely to turn to adults for help in fulfilling his desires may be especially vulnerable to school problems. The data imply that the preschool teacher needs to help these children to feel they can depend on teachers to meet their own needs. Because early school learning inevitably occurs in the context of high levels of verbal interaction between adult and child, the ability to rely on the adult teacher, to ask her for help when needed, may well be a key factor in facilitating early school learning.

The field of sociolinguistics is new, and the field of developmental sociolinguistics has been virtually uncharted heretofore. Yet compensatory preschool programs proliferate, unable to await the researcher's final judgment on the relative merits of didactic vs. whole-child programs. For this reason, despite the highly preliminary nature of the present research findings, educational implications have been derived in an effort to articulate some of the teacher-child communication processes that might help make whole-child programs more effective.

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Footnotes

1. Present address: Barnard College, Columbia University, New York, N.Y. 10027.

2. For an attempt to apply Skinner's functional system to the speech of two preschoolers, see Horner and Gussow (1972).

3. It may be noted that no 2-year-olds were observed in the instrument development phase. In the studies undertaken to date, the FIS-P has been found to apply to 2-year-olds with no modification needed.

4. The 4-year-old sample for the Developmental and Sociolinguistic Studies was selected from this previous sample, excluding a group of Ss at a Montessori-type school, and adding a group of advantaged Ss, to conform with the selection criteria for the present study (see sample description below).

5. It may be noted that the positive-negative (evaluation) polarity is one of three dimensions of meaning in the semantic studies of Osgood, Suci and Tannenbaum (1957), the other two dimensions being strong-weak (potency) and active-passive (activity). Recent research continues to support this semantic formulation (Snider and Osgood, 1969).

6. Out of 174 Ss studied, only two produced no scoreable statements, one 3-year-old advantaged white S, and one 2-year-old disadvantaged black S.

7. Questions are scored in whichever category best describes their function. For example, "Can I have some?" is scored as Desire Implementing (Category II), while "Wasn't that nice of me?" is scored as Ego-Enhancing (Category IV).

8. The elevated abbreviations Ch and Ad denote the Listener Designations to Child and to Adult, respectively..

9. An empirical analysis of teacher- and child-addressed statements, in progress, supports the above rational analysis.

10. The average group was derived by selecting the 5 boys and 5 girls whose Binet IQs came closest to 100, at the center where the 4-year-old disadvantaged blacks were observed.

11. It may be noted that diffusely directed statements, those addressed neither to adult nor child listeners specifically, were uncommon. Analysis of the data for the previous 4-year-old study (Schachter, 1971) shows 18% adult-directed, 71% child-directed, and 11% diffusely directed.

12. These eight low frequency scores are, in the Expressive Category, Subcategories Positive and Negative; in the Ego-Enhancing Category, Subcategories Assumes Teacher Role-Competence, Asserts Pride in Goodness, etc., Assumes Teacher Role-Goodness, Denigrates Other-Goodness, Denigrates Other-General; in the Learning Implementing Category, Subcategory Pursues New Knowledge.

13. Guttman (1956) scalogram analysis could not be undertaken because there was an insufficient number of points in the scale, 4 points for personal motives, 3 for social.

14. It is interesting to note that the data of the present study also have implications for Piaget's (1926) formulations on egocentric speech. Specifically, the finding that desire implementing speech is early maturing, with high levels at age 2, and no evidence of an age increment from age 2 to 5, directly contradicts Piaget's placement of this kind of speech in his late maturing category of socialized speech (i.e., Commands, Requests and Threats). The present finding may help to shed light on the long history of contradictory findings with regard to Piaget's coefficient of egocentric speech. This coefficient, a percentage which presumes to show the amount of immature egocentric speech relative to total speech, has been found to vary from 2% to 70% (see Kohlberg, Yaeger and Hjertholm, 1968). The present data on desire implementing speech indicate that what is presumed to be an index of immature egocentric speech has in its denominator a very

frequent form of immature desire implementing speech. Variations in the amount of immature desire implementing speech could bring about confusing variations in the index of immature egocentric speech. The data suggest that the coefficient of egocentricism should be calculated, excluding the immature desire implementing statements from the denominator. Better still, the general problem of the distortions that are introduced with percent conversion of speech data (discussed above) argues strongly for the use of an interval score, in studies of egocentric speech, rather than a percentage.

15. It can be seen that, at the present state of knowledge, we are assuming a linear relationship, if any, between preschool speech and later school functioning, despite the likely complexity of the intervening processes.

Table 1

Sample Description at Each Age Level
-N, Age, IQ, and Verbal Productivity-

Longitudinal Sample, N=4

Sample Description	Age Levels				
	2-0	2½	3-0	3½	4½
N	4	4	4	4	3
Age (months)					
Mean	23.5	30.0	35.5	43.0	55.0
Range	22-25	28-31	34-37	41-44	54-56
IQ					
Mean			152.2		
Range			136-170		
Total Statements					
Mean	63.0	89.0	104.8	115.0	15
Range	42-80	43-116	63-175	81-157	147-
Total Intervals					
Mean	10.8	11.0	11.8	11.5	12.0
Range	9-12	10-12	11-12	11-12	12-12

Cross-Sectional Sample, N=170

Sociolinguistic Groups	Age Levels			
	2½	3½	4½	5½
Advantaged				
White				
N	10	10	10	10
Age (months)				
Mean	30.20	42.60	52.70	65.50
s.d.	3.80	2.46	3.50	4.45
IQ				
Mean	128.20	133.40	116.90	135.00
s.d.	23.35	18.13	18.24	15.13
Total Statements				
Mean	92.10	72.60	69.10	135.80
s.d.	44.50	58.81	32.47	40.71
Total Intervals				
Mean	11.10	9.50	10.60	11.40
s.d.	1.85	3.57	1.27	.70
Black				
N	10	10	10	10
Age (months)				
Mean	32.00	43.90	54.90	65.30
s.d.	3.43	2.14	3.18	3.92
IQ				
Mean	110.60	113.80	111.90	113.10
s.d.	13.87	16.78	14.71	19.22
Total Statements				
Mean	67.40	117.80	107.40	111.60
s.d.	18.40	50.13	48.98	53.10
Total Intervals				
Mean	10.40	11.40	11.40	11.00
s.d.	2.32	1.08	.84	1.15

Table 1 (cont.)

Cross-Sectional Sample, N=170 (cont.)

Sociolinguistic Groups	Age Levels				
	2½	3½	4½		5½
Disadvantaged Black					
Higher IQ[a]					
N	10	10	10		10
Age (months)					
Mean	30.80	43.20	53.60		65.50
s.d.	3.79	2.75	4.09		2.71
IQ					
Mean	103.70	111.60	114.70		115.30
s.d.	7.73	6.03	7.24		14.88
Total Statements					
Mean	47.90	72.00	67.10		135.50
s.d.	22.77	36.18	38.41		55.50
Total Intervals					
Mean	9.80	9.20	9.90		10.70
s.d.	1.55	1.94	2.20		2.26
Average IQ[b]					
N			10		
Age (months)					
Mean			53.50		
s.d.			3.28		
IQ					
Mean			99.50		
s.d.			3.41		
Total Statements					
Mean			53.70		
s.d.			25.49		
Total Intervals					
Mean			9.60		
s.d.			1.51		
Lower IQ[c]					
N	10	10	10		10
Age (months)					
Mean	30.00	42.20	55.20	54.40	66.20
s.d.	3.65	3.55	3.74	3.50	2.40
IQ					
Mean	82.30	91.80	74.60	87.00	82.60
s.d.	5.93	9.06	13.14	3.60	9.76
Total Statements					
Mean	32.90	72.80	35.00	44.40	117.90
s.d.	2.33	34.17	31.16	28.30	58.66
Total Intervals					
Mean	7.30	10.00	6.10	7.80	11.20
s.d.	3.83	2.05	4.04	2.80	1.14

Table 1 (cont.)

Cross-Sectional Sample, N=170 (cont.)

Sociolinguistic Groups	Age Levels 2½	3½	4½	5½
Total Sample				
N	40	40	50	40
Age (months)				
Mean	30.75	42.98	53.95	65.63
s.d.	3.62	2.75	3.55	3.37
IQ				
Mean	106.20	112.65	105.34	111.50
s.d.	21.66	19.76	19.87	23.91
Total Statements				
Mean	60.08	83.80	70.09	125.20
s.d.	37.64	48.42	42.21	51.52
Total Intervals				
Mean	9.65	10.03	9.77	11.08
s.d.	2.84	2.40	2.86	1.40

Note.--Half of each sample is male, half female, except for the longitudinal sample at age 4½, because one girl moved to the west coast. Means for the longitudinal sample at age 4½ are extrapolated from three Ss to four.

[a]Upper half of sample for ages 2½, 3½ and 5½; upper third at age 4½.

[b]Ten Ss with average IQ (93-105).

[c]Lower half of sample for ages 2½, 3½ and 5½: For age 4½ there are two columns of descriptive data, the column on the left describing the lower third of the sample (N=10), the column on the right describing the lower third combined with the average IQ group (N=20).

Table 2

Mean FIS-P Speech Scores for the Longitudinal Sample (N=4)[a]
(Number of Intervals out of 12)

FIS-P Speech Scores	Age Levels				
	2-0	2½	3-0	3½	4½
Subcategory Scores					
Personal Motives					
I. Expressive					
Positive	0	0	0	1.0	.8
Negative	.2	0	.2	.5	0
Positive/Negative	0	0	0	.2	.2
II. Desire Implementing					
Asserts Desire	6.8	6.5	6.8	5.2	3.8
Stops Frustrator of Desire[Ch][b]	2.0	3.5	3.5	1.8	1.2
III. Possession Rights Implementing					
Asserts Possession Rights	.5	2.0	1.2	1.0	3.8
Stops Frustrator-Possession Rights[Ch]	1.5	2.2	2.2	3.5	2.2
IV. Ego-Enhancing					
Asserts Pride in Competence, etc.	0	1.0	3.5	4.5	2.8
Assumes Teacher Role-Competence[Ch]	0	0	.5	.2	.2
Denigrates Other-Competence, etc.[Ch]	0	.2	.8	.2	2.8
Asserts Pride in Goodness, etc.	0	.5	0	0	0
Assumes Teacher Role-Goodness[Ch]	0	0	.5	.8	.2
Denigrates Other-Goodness, etc.[Ch]	0	1.2	.5	.2	0
Denigrates Other-General[Ch]	0	0	.5	0	.8
Teases and Tests Limits	0	0	1.5	3.0	1.2
Social Motives					
V. Self-Referring-Including					
Me Too	1.2	2.8	4.5	3.5	2.2
Me Better[Ch]	0	0	2.5	1.2	2.8
VI. Joining[Ch]					
Join Me[Ch]	1.0	2.0	3.0	3.5	2.0
Excludes Other[Ch]	0	0	.2	.8	0
VII. Collaborative[Ch]					
Discourse[Ch]	0	2.0	5.0	6.2	10.2
Disagree[Ch]	0	.5	2.8	1.8	4.8
Dramatic Play[Ch]	.2	1.2	2.2	4.2	5.8
Chanting[Ch]	.8	2.2	3.2	1.5	1.0
Giving[Ch]	0	1.0	.2	1.2	1.0

Table 2 (cont.)

FIS-P Speech Scores	Age Levels 2-0	2½	3-0	3½	4½
Subcategory Scores (cont.)					
Other Motives					
VIII. Learning Implementing					
Pursues New Knowledge	.5	3.8	1.8	1.5	.2
Restates Old Knowledge	1.0	1.0	0	1.0	.8
IX. Reporting					
About Self	3.2	3.5	3.8	4.8	2.8
About Others	2.8	1.8	2.0	.5	.2
About Things	4.5	2.2	1.5	2.2	1.0
Appended Scores					
Adult Listener	10.2	9.5	7.5	7.5	3.2
Child Listener	5.2	6.8	10.2	10.5	12.0
Asserts Desire[Adc]	6.5	6.2	4.8	5.0	3.0
Modulation	.2	1.0	4.5	4.5	8.0

[a]Except for the loss of a girl at age 4½. Means at 4½-year-old level extrapolated from three Ss to four.

[b]Statement addressed almost exclusively to child listener.

[c]Statement addressed exclusively to adult listener.

Table 3

Mean FIS-P Speech Scores for Advantaged White Sample
(Number of Intervals out of 12)

FIS-P Speech Scores	Age Levels 2½	3½	4½	5½
N	10	10	10	10
Subcategory Scores				
Personal Motives				
I. Expressive				
Positive	.6	.4	.5	.3
Negative	.6	.1	.5	.2
Positive/Negative	2.2	1.2	.3	2.2
II. Desire Implementing				
Asserts Desire	5.8	5.1	5.9	4.6
Stops Frustrator of Desire$^{Ch^a}$	1.9	1.8	1.1	2.4
III. Possession Rights Implementing				
Asserts Possession Rights	1.2	.5	2.1	1.0
Stops Frustrator-Possession Rights^{Ch}	1.4	1.2	1.4	1.7
IV. Ego-Enhancing				
Asserts Pride in Competence, etc.	1.5	2.8	3.1	3.0
Assumes Teacher Role-Competence^{Ch}	.4	.2	.4	.9
Denigrates Other-Competence, etc.^{Ch}	.1	.2	.2	1.2
Asserts Pride in Goodness, etc.	.2	.2	.4	.4
Assumes Teacher Role-Goodness^{Ch}	.2	.1	.2	.2
Denigrates Other-Goodness, etc.^{Ch}	.1	.2	.4	.1
Denigrates Other-General^{Ch}	.1	.1	0	0
Teases and Tests Limits	1.2	2.2	1.2	2.8
Social Motives				
V. Self-Referring-Including				
Me Too	2.4	2.4	3.7	2.6
Me Better^{Ch}	.2	.8	.6	.9
VI. Joining^{Ch}				
Join Me^{Ch}	1.1	.7	2.1	1.9
Excludes Other^{Ch}	0	.2	.8	.7
VII. Collaborative^{Ch}				
Discourse^{Ch}	3.4	3.1	4.1	6.4
Disagree^{Ch}	1.2	1.0	.9	3.8
Dramatic Play^{Ch}	1.0	1.3	2.0	1.8
Chanting^{Ch}	.7	1.0	1.6	.8
Giving^{Ch}	.6	.8	.7	.9

Table 3 (cont.)

FIS-P Speech Scores	Age Levels 2½	3½	4½	5½
Subcategory Scores (cont.)				
Other Motives				
VIII. Learning Implementing				
Pursues New Knowledge	.1	.3	.4	.8
Restates Old Knowledge	1.8	.9	.4	1.5
IX. Reporting				
About Self	3.6	2.9	3.9	3.9
About Others	1.5	.8	.2	1.7
About Things	1.6	1.2	2.0	2.3
Appended Scores				
Adult Listener	7.3	6.1	4.5	5.2
Child Listener	7.9	6.6	8.1	10.4
Asserts Desire[Ad][b]	2.7	2.4	3.5	1.7
Modulation	.6	.5	2.7	3.4

[a]Statement addressed almost exclusively to child listener.

[b]Statement addressed exclusively to adult listener.

Table 4

Mean FIS-P Speech Scores for Advantaged Black Sample
(Number of Intervals out of 12)

FIS-P Speech Scores	Age Levels			
	2½	3½	4½	5½
N	10	10	10	10
Subcategory Scores				
Personal Motives				
I. Expressive				
Positive	.4	.7	.1	.5
Negative	.5	.8	.7	.7
Positive/Negative	.3	1.8	.6	1.9
II. Desire Implementing				
Asserts Desire	4.5	3.6	3.9	3.3
Stops Frustrator of Desire[Ch a]	4.0	3.7	2.9	3.5
III. Possession Rights Implementing				
Asserts Possession Rights	.7	1.6	2.5	1.0
Stops Frustrator-Possession Rights[Ch]	2.5	2.4	2.1	.8
IV. Ego-Enhancing				
Asserts Pride in Competence, etc.	1.6	2.8	3.9	1.7
Assumes Teacher Role-Competence[Ch]	0	.3	.3	.3
Denigrates Other-Competence, etc.[Ch]	.1	.1	1.3	.6
Asserts Pride in Goodness, etc.	.3	.2	.8	.1
Assumes Teacher Role-Goodness[Ch]	0	0	.3	.1
Denigrates Other-Goodness, etc.[Ch]	.5	.2	.9	.5
Denigrates Other-General[Ch]	0	.3	.8	.7
Teases and Tests Limits	.2	2.1	1.5	2.4
Social Motives				
V. Self-Referring-Including				
Me Too	3.5	3.6	3.8	1.9
Me Better[Ch]	.1	.2	.8	1.1
VI. Joining[Ch]				
Join Me[Ch]	2.8	2.1	2.6	2.4
Excludes Other[Ch]	.2	1.5	1.5	1.1
VII. Collaborative[Ch]				
Discourse[Ch]	2.0	6.0	7.1	7.8
Disagree[Ch]	0	3.1	2.9	3.5
Dramatic Play[Ch]	1.6	2.2	2.4	2.6
Chanting[Ch]	2.1	1.7	1.1	1.4
Giving[Ch]	.3	.7	.4	1.2

Table 4 (cont.)

FIS-P Speech Scores	Age Levels 2½	3½	4½	5½
Subcategory Scores (cont.)				
Other Motives				
VIII. Learning Implementing				
Pursues New Knowledge	.3	.4	.2	.4
Restates Old Knowledge	.8	.8	.5	.4
IX. Reporting				
About Self	2.3	2.6	3.8	3.1
About Others	.5	1.3	1.2	2.0
About Things	.8	1.3	1.6	1.2
Appended Scores				
Adult Listener	5.8	4.1	4.4	3.1
Child Listener	8.0	10.0	10.1	10.4
Asserts Desire[Ad][b]	2.5	1.9	2.4	1.6
Modulation	.4	1.7	2.7	2.7

[a]Statement addressed almost exclusively to child listener.

[b]Statement addressed exclusively to adult listener.

Table 5

Mean FIS-P Speech Scores for Disadvantaged Black Higher IQ Sample
(Number of Intervals out of 12)

FIS-P Speech Scores	Age Levels 2½	3½	4½	5½
N	10	10	10	10
Subcategory Scores				
Personal Motives				
I. Expressive				
Positive	.1	.5	.4	.4
Negative	.2	.4	.4	.7
Positive/Negative	1.1	.8	.4	1.3
II. Desire Implementing				
Asserts Desire	3.6	3.1	3.6	3.4
Stops Frustrator of Desire[Ch a]	4.3	2.7	2.3	4.1
III. Possession Rights Implementing				
Asserts Possession Rights	.5	1.2	2.0	.7
Stops Frustrator-Possession Rights[Ch]	.4	1.4	1.2	1.9
IV. Ego-Enhancing				
Asserts Pride in Competence, etc.	.7	3.1	2.8	4.4
Assumes Teacher Role-Competence[Ch]	0	.4	0	.3
Denigrates Other-Competence, etc.[Ch]	0	.8	.2	1.3
Asserts Pride in Goodness, etc.	.1	.1	.2	0
Assumes Teacher Role-Goodness[Ch]	.2	0	.3	.3
Denigrates Other-Goodness, etc.[Ch]	.1	.2	.9	.7
Denigrates Other-General[Ch]	.1	.2	0	.5
Teases and Tests Limits	.4	1.5	.5	2.7
Social Motives				
V. Self-Referring-Including				
Me Too	1.5	2.0	3.6	2.3
Me Better[Ch]	0	.4	.5	2.7
VI. Joining[Ch]				
Join Me[Ch]	1.1	.9	2.2	3.7
Excludes Other[Ch]	0	.2	.8	1.4
VII. Collaborative[Ch]				
Discourse[Ch]	1.7	4.1	5.4	6.9
Disagree[Ch]	.3	1.2	.7	3.5
Dramatic Play[Ch]	.6	.7	1.7	.6
Chanting[Ch]	.8	1.4	.9	2.2
Giving[Ch]	.3	.4	1.3	.6

Table 5 (cont.)

FIS-P Speech Scores	Age Levels			
	2½	3½	4½	5½
Subcategory Scores (cont.)				
Other Motives				
VIII. Learning Implementing				
Pursues New Knowledge	.8	.2	.3	.5
Restates Old Knowledge	1.2	.2	.4	.9
IX. Reporting				
About Self	1.8	2.3	3.1	2.6
About Others	.3	1.1	.7	1.8
About Things	1.3	.9	.9	1.8
Appended Scores				
Adult Listener	5.2	4.1	4.6	2.5
Child Listener	6.2	7.0	7.8	10.1
Asserts Desire[Ad][b]	1.6	1.3	2.3	.8
Modulation	.2	.6	1.2	1.7

Note.--Higher IQ denotes upper half of sample of 20 for 2½-, 3½- and 5½-year-old samples and upper third of sample of 30 for 4½-year-olds.

[a]Statement addressed almost exclusively to child listener.

[b]Statement addressed exclusively to adult listener.

Table 6

Mean FIS-P Speech Scores for Disadvantaged Black Lower IQ Sample
(Number of Intervals out of 12)

FIS-P Speech Scores	Age Levels				
	2½	3½	4½		5½
N	10	10	10	10	10
Personal Motives					
I. Expressive					
Positive	.5	.1	.1	.2	.3
Negative	.3	.8	.3	.4	.8
Positive/Negative	.3	.7	.7	.5	1.8
II. Desire Implementing					
Asserts Desire	1.9	3.8	2.2	2.6	2.9
Stops Frustrator of Desire[Ch a]	3.2	2.8	1.6	2.4	3.6
III. Possession Rights Implementing					
Asserts Possession Rights	.4	.7	.9	1.3	1.8
Stops Frustrator-Possession Rights[Ch]	.8	1.2	.8	.8	2.3
IV. Ego-Enhancing					
Asserts Pride in Competence, etc.	.8	2.8	1.5	2.6	2.1
Assumes Teacher Role-Competence[Ch]	.1	.2	0	.1	.2
Denigrates Other-Competence, etc.[Ch]	0	.2	0	.2	.5
Asserts Pride in Goodness, etc.	0	.2	.1	.4	0
Assumes Teacher Role-Goodness[Ch]	0	0	0	.2	.4
Denigrates Other-Goodness, etc.[Ch]	0	.1	0	.2	.9
Denigrates Other-General[Ch]	0	0	0	0	1.0
Teases and Tests Limits	.4	1.2	0	0	2.9
Social Motives					
V. Self-Referring-Including					
Me Too	1.3	1.5	.5	1.3	2.9
Me Better[Ch]	.1	.2	.1	.4	1.7
VI. Joining[Ch]					
Join Me[Ch]	.7	1.1	.6	.8	2.2
Excludes Other[Ch]	.3	.4	.2	.4	1.1
VII. Collaborative[Ch]					
Discourse[Ch]	1.8	3.4	2.5	3.4	6.8
Disagree[Ch]	.2	.8	.3	.5	3.2
Dramatic Play[Ch]	.5	1.1	.9	.8	1.6
Chanting[Ch]	1.1	1.3	.2	.2	2.1
Giving[Ch]	.2	.7	.2	.6	.6

Table 6 (cont.)

FIS-P Speech Scores	Age Levels				
	2½	3½	4½		5½
Subcategory Scores (cont.)					
Other Motives					
VIII. Learning Implementing					
Pursues New Knowledge	0	.2	.1	.2	.3
Restates Old Knowledge	.4	.3	.1	.2	.6
IX. Reporting					
About Self	1.3	2.0	1.0	1.4	3.5
About Others	.2	1.4	.9	.6	1.0
About Things	.4	1.5	.6	.8	1.6
Appended Scores					
Adult Listener	3.3	4.6	2.1	2.6	2.0
Child Listener	5.2	8.0	5.3	6.7	10.5
Asserts Desire[Ad][b]	.6	1.5	.9	1.0	.6
Modulation	0	.5	.4	.8	1.9

Note.--Lower IQ denotes lower half of sample of 20 for 2½-, 3½- and 5½-year-old samples; lower third of sample of 30 for 4½-year-old column, left side; and lower third plus average IQ group (N=20) for 4½-year-old column, right side.

[a]Statement addressed almost exclusively to child listener.

[b]Statement addressed exclusively to adult listener.

Table 7

SUMMARY OF DEVELOPMENTAL FINDINGS: TABLES 2-6
Number of Five Samples with Age Increase, Decrease or Neither
for FIS-P Speech Scores with Adequate Frequencies

FIS-F Speech Scores	Age Decrease	Neither	Age Increase
Subcategory Scores			
Personal Motives			
I. Expressive			
Positive/Negative		4	1 DBL[a]
II. Desire Implementing			
Asserts Desire	3	1 DBH	1 DBL
Stops Frustrator of Desire Ch[b]	1 Lo	4	
III. Possession Rights Implementing			
Asserts Possession Rights		4	1 DBL
Stops Frustrator Possession Rights Ch	1 AB	2	2
IV. Ego-Enhancing			
Asserts Pride in Competence, etc.			5*
Denigrates Other-Competence, etc. Ch			5*
[Teases and Tests Limits		3	2][c]
Social Motives			
V. Self-Referring-Including			
Me Too	1 AB	3	1 DBL
[Me Better Ch			5]*
VI. Joining Ch			
Join Me Ch		2	3
Excludes Other Ch		1 Lo	4
VII. Collaborative Ch			
Discourse Ch			5*
Disagree Ch			5*
Dramatic Play Ch			5*
[Chanting Ch	1 AB	2	2
[Giving Ch		4	1 DBL]
Other Motives			
VIII. Learning Implementing			
Restates Old Knowledge		5	
IX. Reporting			
About Self		4	1 DBL
[About Others	1 Lo	1 AW	3]
About Things		4	1 DBL

Table 7 (cont.)

FIS-P Speech Scores	Age Decrease	Neither	Age Increase
Appended Scores			
Adult Listener	4	1[DBL]	
Child Listener			5*
Asserts Desire[Add]	2	3	
Modulation			5*

Note.--Age increase, decrease, or neither covers ages 2½, 3½, 4½ and 5½ for all samples except the longitudinal sample. For the latter, only the age levels 2½, 3½ and 4½ are summarized in Table 7. The criterion for adequate frequency of score was that more than one of the five samples show a mean greater than 1.0 at any of the age levels under study.

[a]When a single sample is developmentally atypical relative to all of the other four samples (i.e., fails to show the typical age increment, decrement, or neither), the sample is identified as follows: DBL denotes Disadvantaged Black Lower IQ sample, DBH Disadvantaged Black Higher IQ, Lo Longitudinal, AB Advantaged Black, and AW Advantaged White.

[b]Statement addressed almost exclusively to child listener.

[c]Brackets denote Subcategory Score inconsistent with findings for other subcategory within same category.

[d]Statement addressed exclusively to adult listener.

* Sign test $p < .03$ (one-tailed).

Table 8

Summary of Analysis of Variance: Sociolinguistic Group X Age X Sex (With Replication for Sex)

FIS-P Speech Scores	Socio-linguistic Group (A)	Age (B)	Sex (C)	AXB	AXC	BXC	AXBX
Subcategory Scores							
Asserts Desire	8.72**	.27	3.03	1.14	.12	.63	.35
Me Too	4.32**	1.82	.51	3.45**	1.36	1.51	.71
Collaborative Disagree[Ch][a]	4.34**	27.51**	.50	2.21*	.33	.55	1.39
Collaborative Dramatic Play[Ch]	4.90**	1.83	.26	.42	1.66	.88	.95
Reporting About Self	4.44**	2.30	.10	.92	.99	.31	.98
Appended Scores							
Asserts Desire[Ad][b]	6.64**	2.75*	6.32*	.50	.08	2.03	.87
Modulation	7.54**	23.86**	.02	1.48	.54	1.52	.16
df	3	3	1	9	3	3	9

[a]Statement addressed almost exclusively to child listener.

[b]Statement addressed exclusively to adult listener.

* $p < .05$.

** $p < .01$.

Table 9

Summary of Scheffé Tests of Differences Among Sociolinguistic Groups

FIS-P Speech Scores	Means for Sociolinguistic Groups			
	Advantaged		Disadvantaged	
	White	Black	Higher IQ	Lower IQ
Subcategory Scores				
Asserts Desire	5.3^{HL}[a]	3.8	3.4	2.5
Me Too	2.8	3.9^{L}	2.4	1.1
Collaborative Disagree[b]	1.0	3.0^{HL}	1.0	.6
Collaborative Dramatic Play[Ch]	1.5	2.2^{HL}	.9	1.0
Reporting About Self	3.6^{L}	3.0	2.4	2.0
Appended Scores				
Asserts Desire[Ad][c]	2.6^{L}	2.1^{L}	1.5	.9
Modulation	1.8^{HL}	1.9^{HL}	.9	.8

Note.--Means of all four age levels, 2½ to 5½, except for scores with significant age by sociolinguistic interaction, Me Too and Collaborative Disagree (see Table 8). For the latter two scores, means are shown for the age range where Scheffé tests show a significant sociolinguistic effect, 2½ to 4½ for Me Too, and 3½ to 4½ for Collaborative Disagree.

[a] H indicates that the advantaged mean is significantly higher ($p < .05$) than the mean for the higher IQ disadvantaged black group. L indicates that the advantaged mean is significantly higher ($p < .05$) than the lower IQ disadvantaged black group.

[b] Statement addressed almost exclusively to child listener.

[c] Statement addressed exclusively to adult listener.

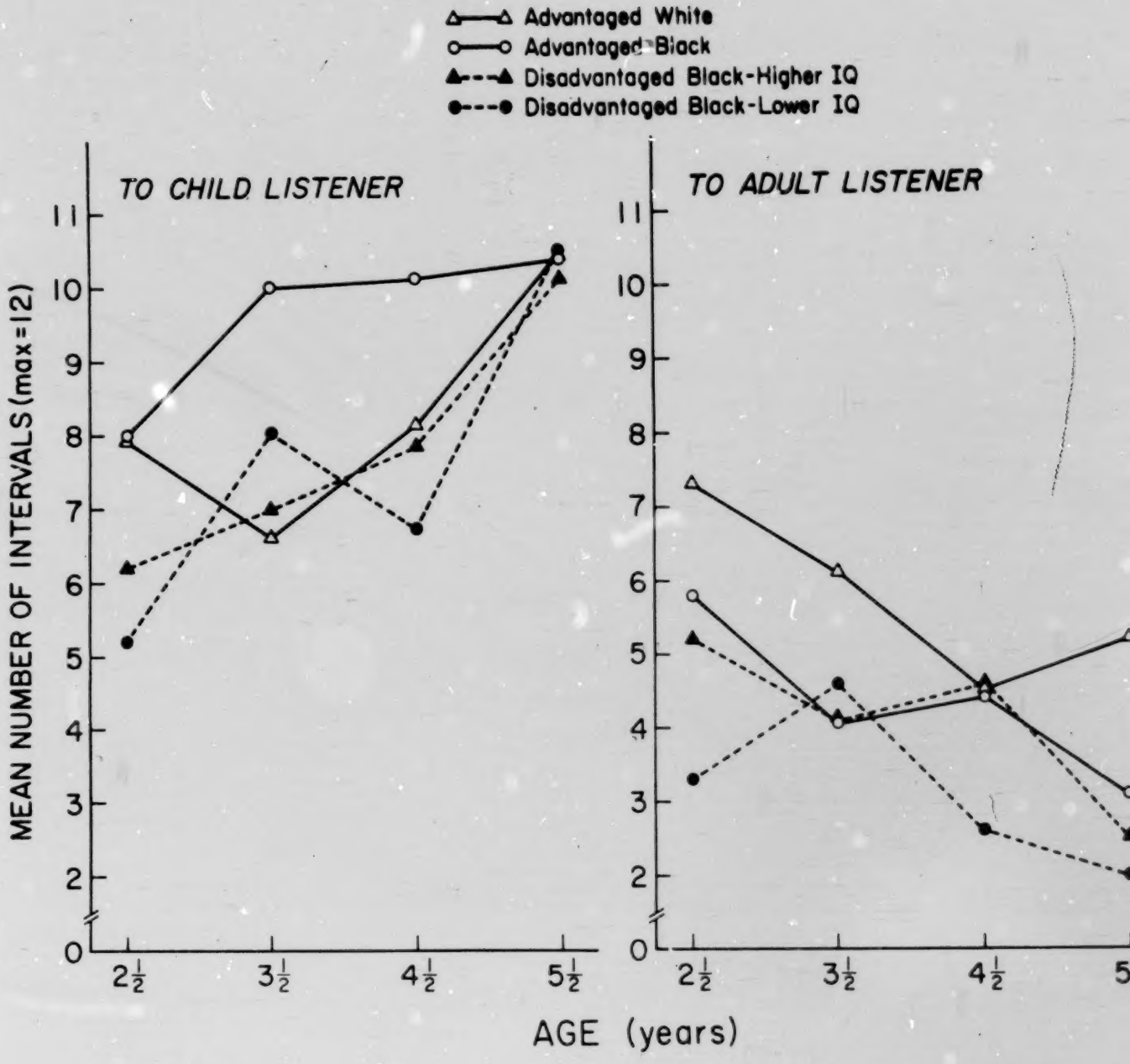

Figure 1.--Speech Scores--Child Listener and Adult Listener: Mean number of 3-minute intervals in which these kinds of speech occurred at ages 2½, 3½, 4½ and 5½, for Sociolinguistic Groups, Advantaged White, Advantaged Black, Disadvantaged Black Higher IQ and Disadvantaged Black Lower IQ.

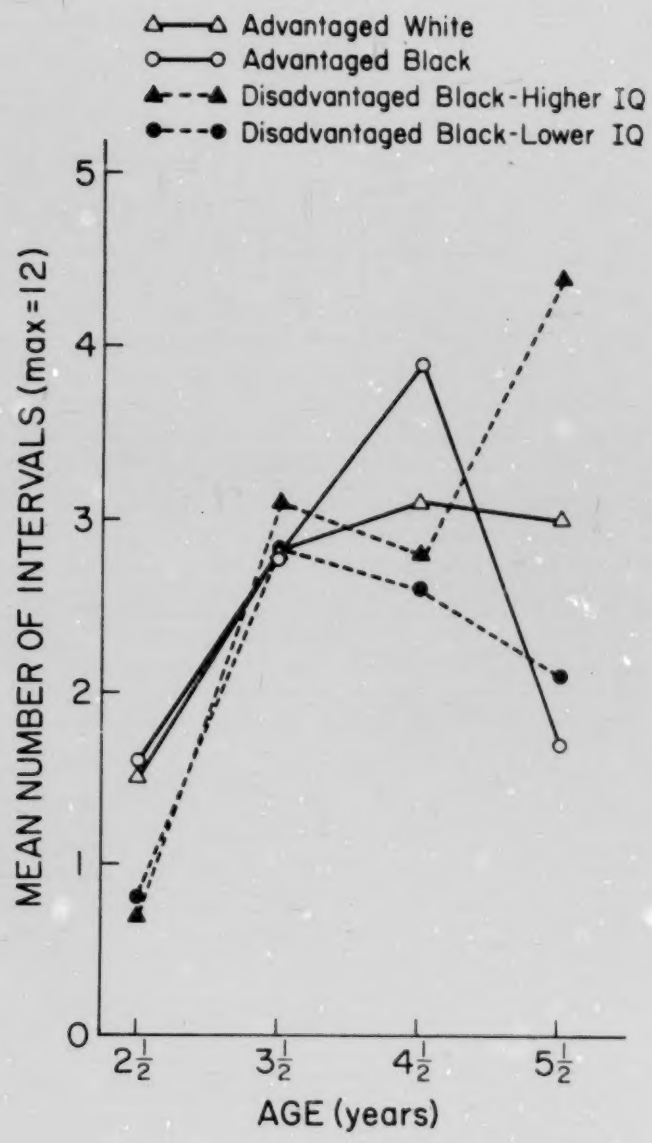

Figure 2.--Speech Score--Asserts Pride in Competence or Achievement, in Possessions, in Knowledge, or in Whole Self: Mean number of 3-minute intervals in which this kind of speech occurred at ages 2½, 3½, 4½ and 5½, for Sociolinguistic Groups, Advantaged White, Advantaged Black, Disadvantaged Black Higher IQ and Disadvantaged Black Lower IQ.

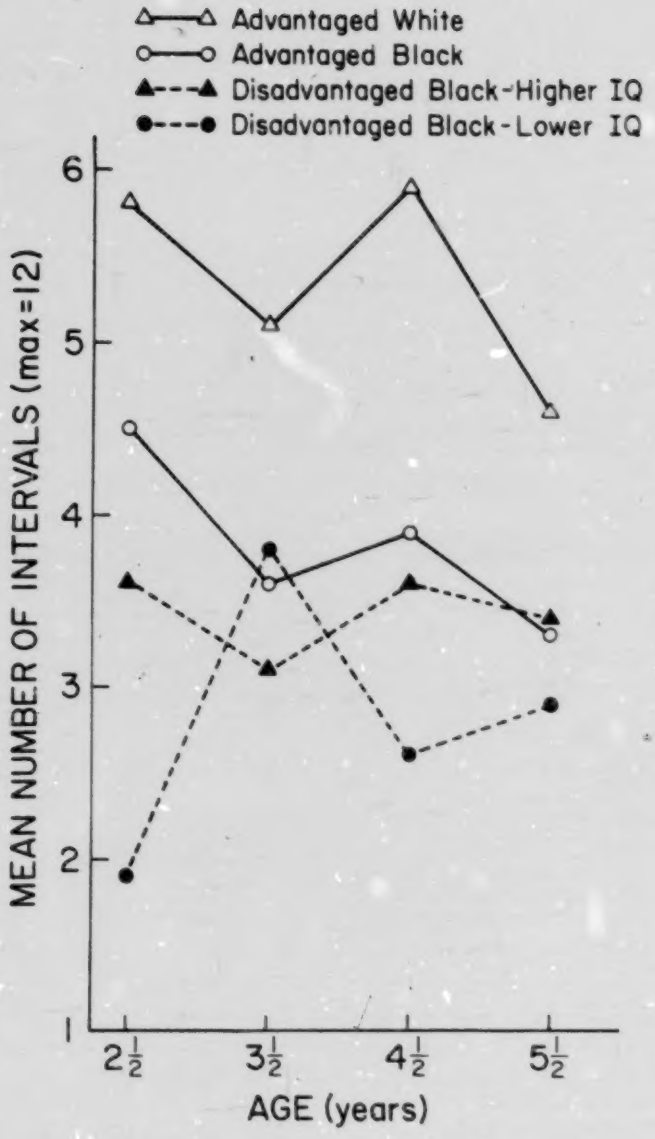

Figure 3.--Speech Score--Asserts Desire: Mean number of 3-minute intervals in which this kind of speech occurred at ages 2½, 3½, 4½ and 5½, for Sociolinguistic Groups, Advantaged White, Advantaged Black, Disadvantaged Black Higher IQ and Disadvantaged Black Lower IQ.

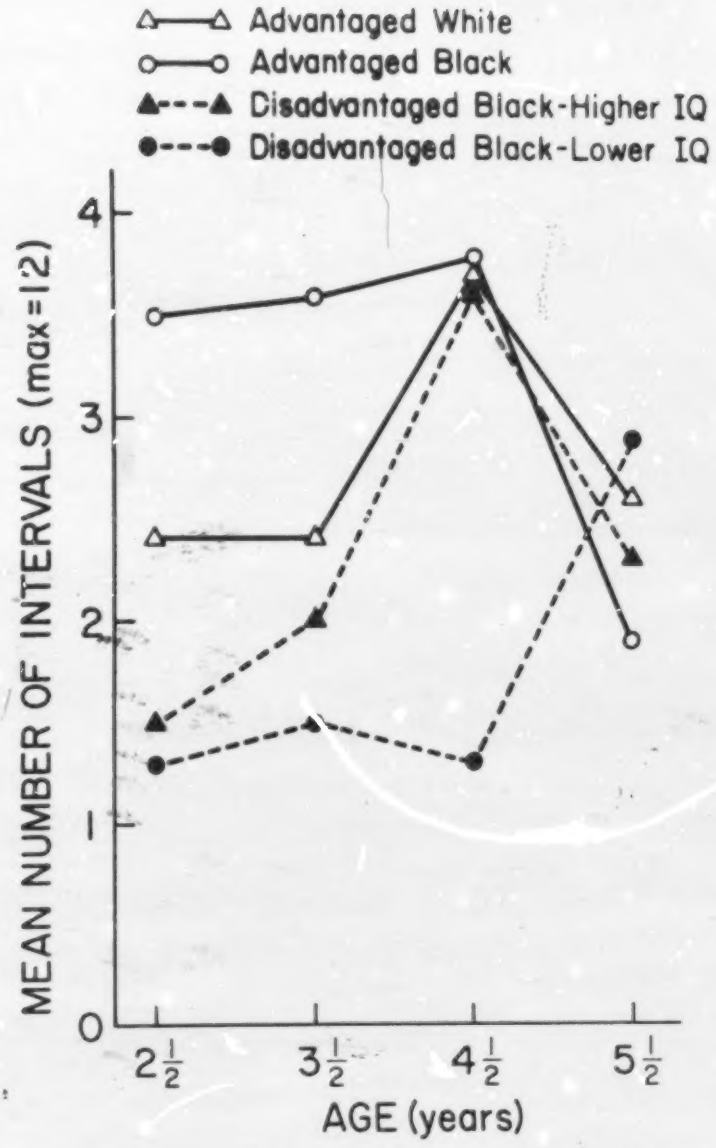

Figure 4.--Speech Score--Me Too: Mean number of 3-minute intervals in which this kind of speech occurred at ages 2½, 3½, 4½ and 5½, for Sociolinguistic Groups, Advantaged White, Advantaged Black, Disadvantaged Black Higher IQ and Disadvantaged Black Lower IQ.

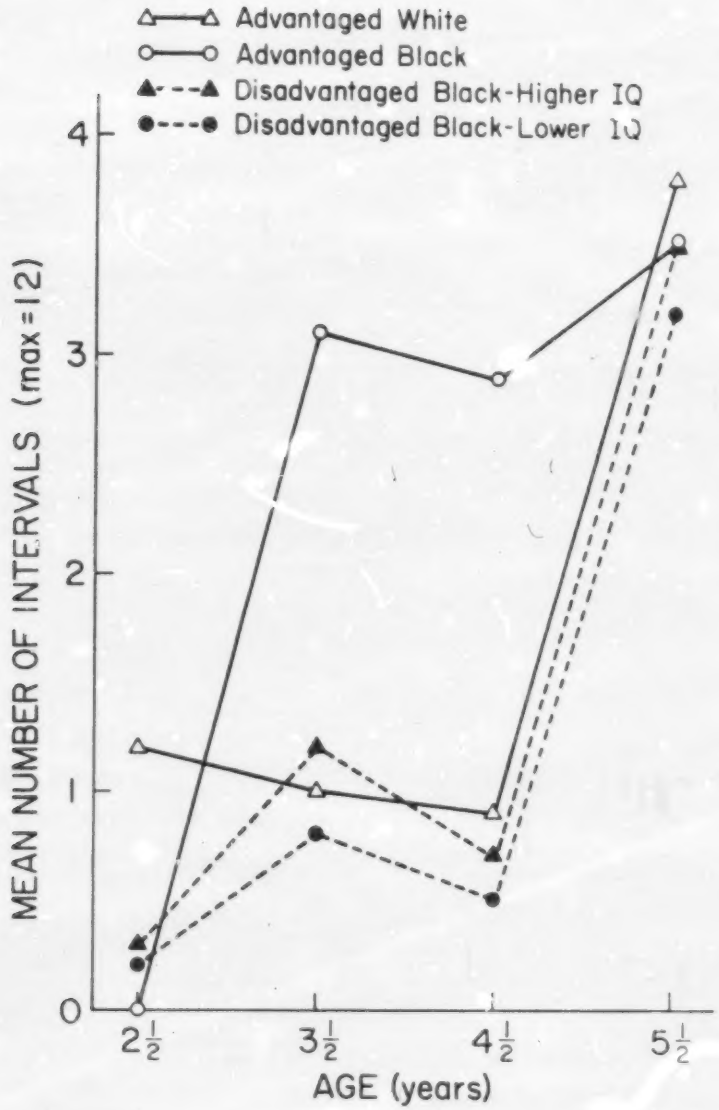

Figure 5.--Speech Score--Collaborative Disagree: Mean number of 3-minute intervals in which this kind of speech occurred at ages 2½, 3½, 4½ and 5½, for Sociolinguistic Groups, Advantaged White, Advantaged Black, Disadvantaged Black Higher IQ and Disadvantaged Black Lower IQ.

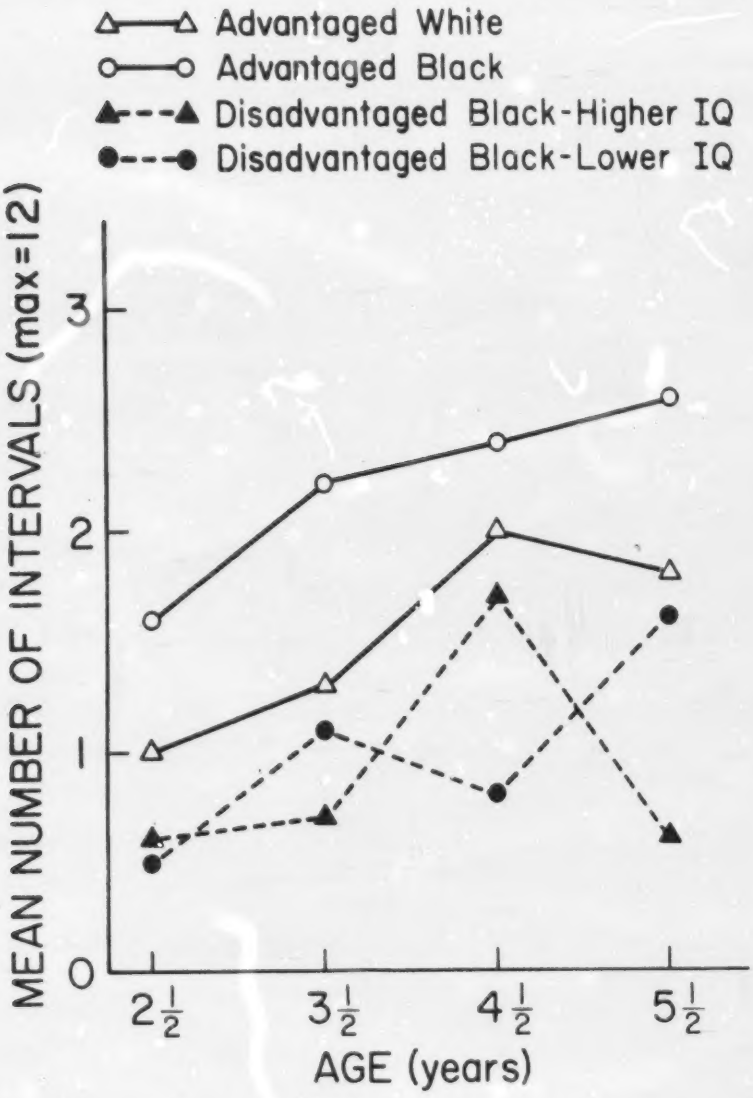

Figure 6.--Speech Score--Collaborative Dramatic Play: Mean number of 3-minute intervals in which this kind of speech occurred at ages 2½, 3½, 4½ and 5½, for Sociolinguistic Groups, Advantaged White, Advantaged Black, Disadvantaged Black Higher IQ and Disadvantaged Black Lower IQ.

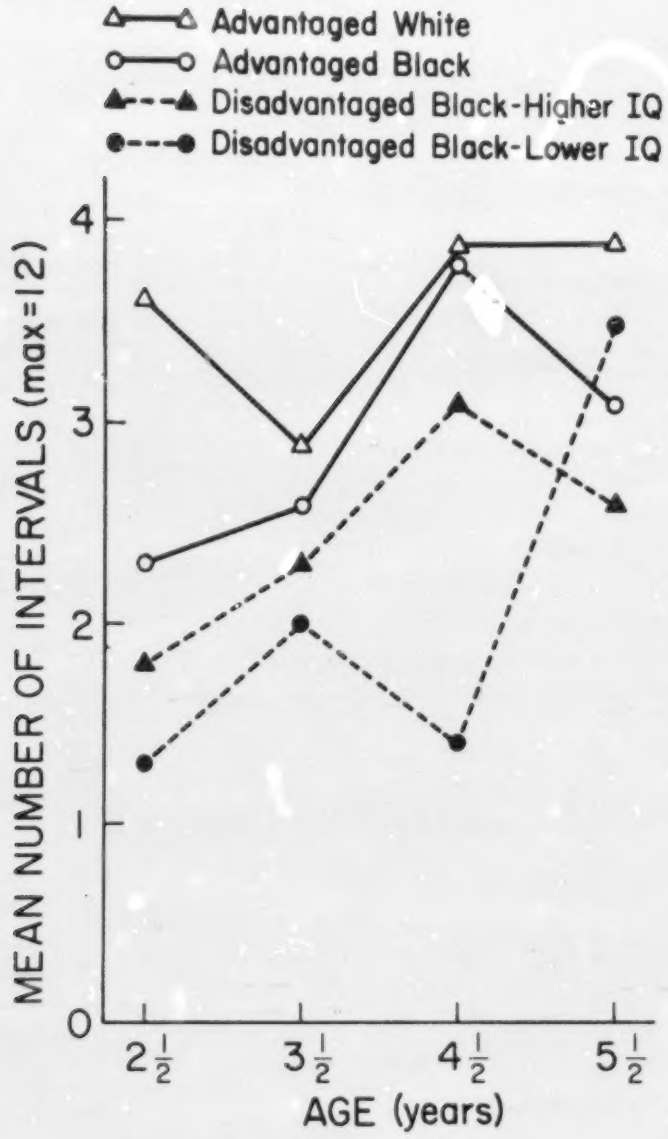

Figure 7.--Speech Score--Reporting About Self: Mean number of 3-minute intervals in which this kind of speech occurred at ages 2½, 3½, 4½ and 5½, for Sociolinguistic Groups, Advantaged White, Advantaged Black, Disadvantaged Black Higher IQ and Disadvantaged Black Lower IQ.

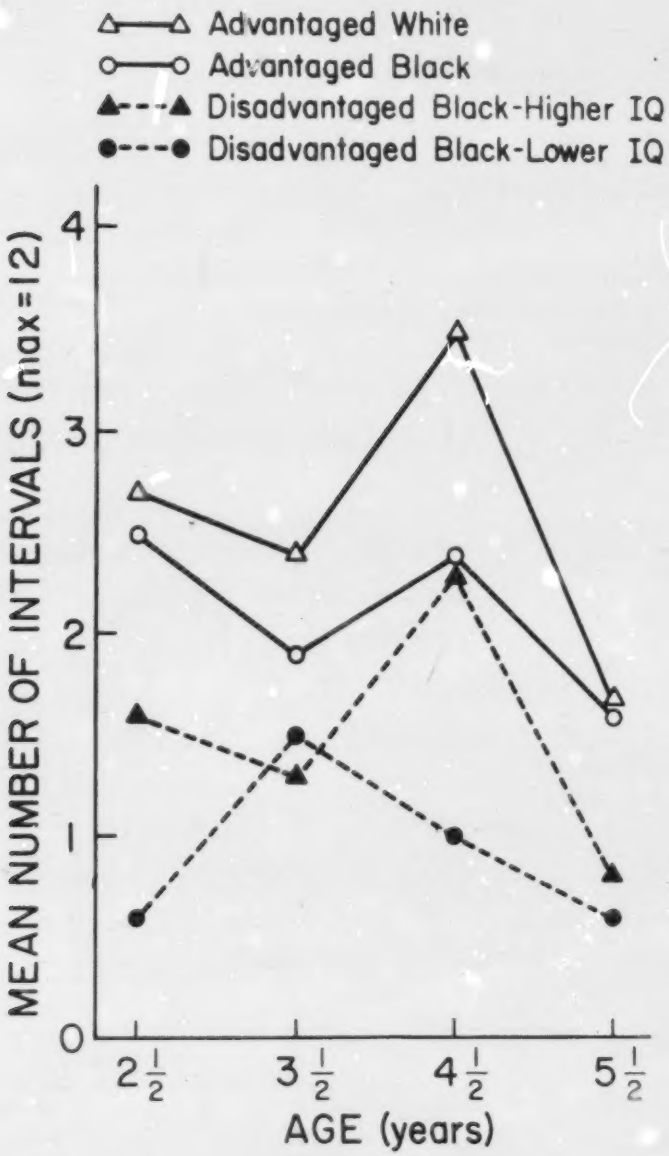

Figure 8.--Speech Score--Asserts Desire to Adult: Mean number of 3-minute intervals in which this kind of speech occurred at ages 2½, 3½, 4½ and 5½, for Sociolinguistic Groups, Advantaged White, Advantaged Black, Disadvantaged Black Higher IQ and Disadvantaged Black Lower IQ.

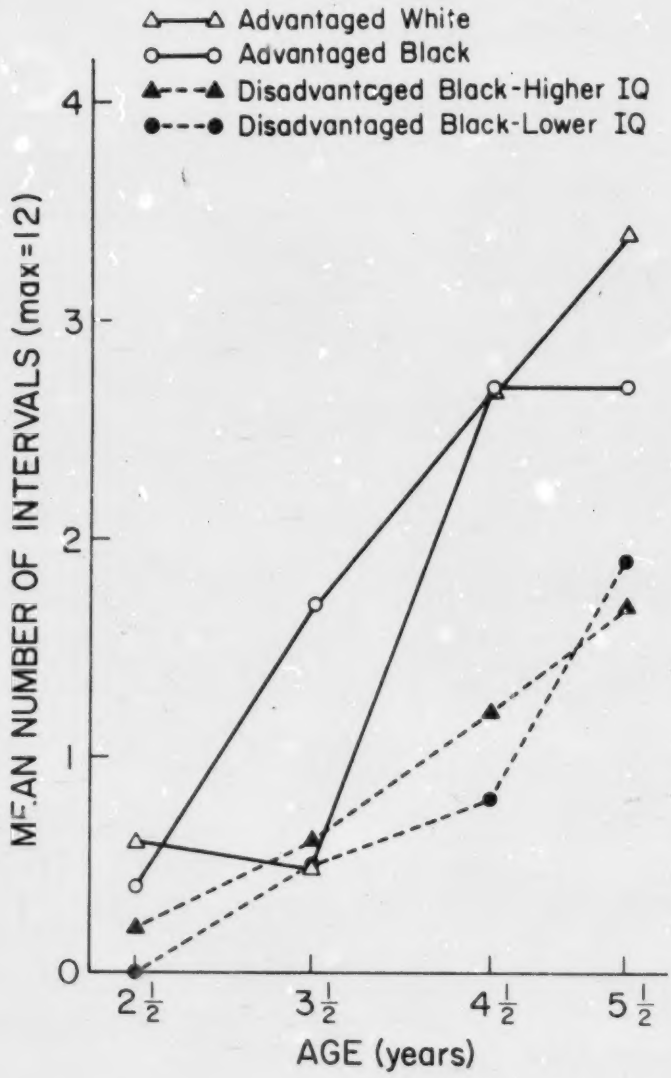

Figure 9.--Speech Score--Modulation: Mean number of 3-minute intervals in which this kind of speech occurred at ages 2½, 3½, 4½ and 5½, for Sociolinguistic Groups, Advantaged White, Advantaged Black, Disadvantaged Black Higher IQ and Disadvantaged Black Lower IQ.